

Phibro-Tech, Inc.  
Santa Fe Springs, California

**Final Phase I Corrective Action Soil Vapor  
Survey Report**

November 16, 2001

*Report*

Phibro-Tech, Inc.  
Santa Fe Springs, California

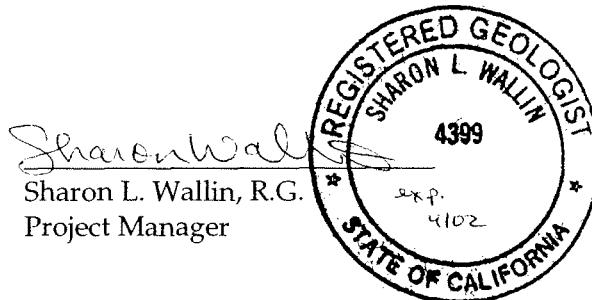
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The information contained in this document has received appropriate technical review and approval. The conclusions and recommendations presented represent professional judgments and are based upon the data obtained during the study, and the interpretation of such data is based on our experience and background. This acknowledgement is made in lieu of all warranties, either expressed or implied. The activities outlined in this report were performed under the supervision of a Registered Geologist or a Professional Engineer.

Reviewed by:



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# Phase I Corrective Action Soil Vapor Survey Report

## 1.0 Introduction and Purpose

The *Hazardous Waste Facility Permit Modification* issued to Phibro-Tech, Inc. (PTI) by the California Environmental Protection Agency Department of Toxic substances Control (DTSC) requires that a Corrective Action Soil Vapor Survey (CASVS) Report be submitted following completion of a soil vapor survey. On March 3 and 4, 2001, a soil vapor survey was performed within a designated halogenated volatile organic compound (VOC) investigation area at the Santa Fe Springs facility. The purpose of the survey was to define the nature and extent of halogenated VOCs in vadose zone soils, as indicated by soil vapor VOC concentrations, and to determine if soil vapor extraction (SVE) is needed to remediate vadose zone soils in this area of the facility. This report presents the results of the survey along with an evaluation of these results with regard to identifying data gaps in defining the vertical and horizontal extent of vadose zone VOC contamination.

## 2.0 Survey Methods

The CASVS was performed according to methods described in the *Soil Vapor Survey Work Plan* (CDM 2001) and according to DTSC comments on this document.

### 2.1 Deviations from Work Plan

All soil vapor sampling locations were as proposed in the work plan with one exception - SV-19 was relocated to the southwest corner of the production office due to lack of access at original location. DTSC personnel overseeing the survey approved the relocation.

## 3.0 Results

This section presents the results of the soil vapor survey, including graphical representations of the data in both plan view and in cross sections. Onsite lab results are presented along with QA/QC sample results in Interphase's Analytical Report that is included in Appendix A of this report.

### 3.1 Compounds and Concentrations Measured

Table 3-1 presents the analytical results of the soil vapor survey. The primary VOCs detected in soil vapor samples were trichloroethene (TCE), 1,1-dichloroethane (1,1-DCA), 1,1-dichloroethene (1,1-DCE), 1,1,1-trichloroethane (1,1,1-TCA), tetrachloroethene (PCE), and Freon-113. These compounds were detected at concentrations ranging from 1.1 to 450 micrograms per liter ( $\mu\text{g/L}$ ). Compounds that were also detected but at lower concentrations and frequencies include: *cis*-1,2-dichloroethene (*cis*-1,2-DCE), chloroform (CF), *trans*-1,2-dichloroethene (*trans*-1,2-DCE), dichloromethane (DCM), chloroethane, vinyl chloride, 1,2-dichloroethane (1,2-DCA), 1,1,2-trichloroethane (1,1,2-TCA), benzene, toluene, ethyl benzene, m/p

xylene, and Freon-11. These compounds were detected at concentrations ranging from 1.1 to 73 µg/L.

### **3.2 Areal Distribution of Soil Vapor Contaminants**

Soil vapor survey results have been graphed to show areal distributions of individual and total VOCs in shallow and deep soil vapor samples. Figures 3-1 through 3-10 present plan view contour maps for total VOCs, 1,1-DCE, 1,1-DCA, TCE, and 1,1,1-TCA found in shallow and deep soil vapor samples.

### **3.3 Vertical Distribution of Soil Vapor Contaminants**

The soil vapor results have also been presented in cross section to show the vertical distribution of contaminants. Figure 3-11 shows the location of the cross sections that have been prepared. Figures 3-12 and 3-13 are cross sections that present soil vapor results and available lithologic data.

### **3.4 Offsite Lab Verification of Onsite Lab**

As specified in the work plan, one Summa canister sample was collected and analyzed by an offsite lab to verify the onsite lab results. This sample was collected from location SV-20 at the 18-foot depth. The sample was sent to Severn Trent Services in Santa Ana, California, for VOC analysis by Method TO-14A. Table 3-2 presents the results of both onsite and offsite analyses for this sample location. The lab report for the Summa canister analysis is presented in Appendix B.

## **4.0 Discussion of Results**

### **4.1 Definition of the Extent of Vadose Zone Contamination**

#### **Areal Distribution**

Evaluation of Figures 3-1 through 3-10 indicates that shallow (5-foot) soil vapor samples, in general, contained significantly less VOCs than deep (>18 feet) samples. This is likely due to the difference in soil type between the uppermost soils and the soils within the middle of the vadose zone or may be attributable to deeper sources of VOCs including off-gassing from groundwater. The existing soil data indicate that, in general, approximately the uppermost 15 feet of soil are clay, followed by approximately 15 feet of sandy soil.

The figures also indicate that the soil vapor samples that were collected near some of the margins of the designated halogenated VOC area contained significant VOC concentrations relative to the other samples. This suggests that the areal extent of soil vapor contamination has not been clearly defined in all locations. Specifically, the areal VOC distribution in soil vapors has not been clearly delineated for the following areas:

- West and south of SV-19
- East of SV-11, SV-13, SV-17, SV-18, and SV-20

- West of SV-1 and SV-14
- South of SV-20

### Vertical Distribution

As mentioned above, there appears to be a clear correlation between VOC concentration in soil vapors and depth, and this may be due to soil stratigraphy. The cross sections in Figures 3-11 and 3-12 show significantly lower VOC concentrations in soil vapors collected from the 5-foot depth compared to those collected from 18 feet and deeper.

An important consideration in evaluating the vertical profile of soil vapor VOCs is the potential impact of underlying VOC-containing groundwater. That is, VOCs in soil vapor may be due to off-gassing from contaminated groundwater and/or contaminated vadose zone soils. There are two evaluation techniques that can be used to help assess whether VOCs in soil vapor originated from soils or from groundwater. One is analysis of the vertical concentration profile. If the VOCs originated solely from contaminated groundwater, then we would expect to see a concentration gradient that was highest near the water table, and declining at shallower depths. The second evaluation method looks at the individual VOCs present in groundwater and then examines the proportion of VOCs in soil vapors. If the "fingerprints" match up, then this would be evidence that the source of VOCs in soil vapor is likely groundwater.

For this soil vapor survey, three sample locations had samples collected below 18 feet - SV-2, SV-17, and SV-18. Samples from locations SV-2 and SV-17 showed lower total VOC concentrations in the deepest samples compared to the 18-foot sample. At SV-18 the 25-foot sample contained a higher concentration of total VOCs than did the sample from 18 feet. Therefore, the concentration gradient method for evaluating groundwater as the source of VOCs is inconclusive with the current soil vapor data.

The composition of VOCs detected in soil vapor and groundwater samples were evaluated for three locations where soil vapor samples were collected near a monitoring well that was sampled and analyzed for VOCs on 10/19/00. The VOCs in SV-18 (25-foot depth) were compared to VOCs in MW-9, VOCs in SV-19 (18-foot depth) were compared to MW-4 groundwater VOCs, and VOCs in SV-2 (26-foot depth), SV-3 (18-foot depth), and SV-8 (18-foot depth) were compared to MW-11 groundwater VOCs. The results are presented in Table 4-1.

The results in this table show that there were individual VOCs in soil vapor that were not detected in nearby groundwater and vice versa. This suggests that groundwater is not the sole source of VOCs in soil vapor. The results also suggest that at least some of the VOCs in soil vapors are due to VOC off-gassing from groundwater. This is particularly true of the results near MW-11 where the soil vapor and groundwater VOC patterns matched closely.

## 4.2 Offsite Lab Verification

A comparison of the onsite and offsite lab results for the 18-foot sample from SV-20 (Table 3-2) indicates that the onsite lab produced very similar results to the offsite lab. In general, the onsite concentrations were lower than the offsite concentrations. The only significant discrepancy was with Freon-113 (1,1,2-trichloro-1,2,2-trifluoroethane). The onsite lab detected 447 µg/L while the offsite lab did not detect this compound above 2.5 µg/L. Overall, these results indicate that the onsite analyses meet the data quality objectives listed in the work plan.

## 4.3 Modeling Potential Impacts of Vadose Zone Soils to Groundwater

The *Guidance for VOC-Impacted Sites: Soil Screening Levels* (California Regional Water Quality Control Board - Los Angeles Region 1996) was used to calculate soil cleanup screening levels for the four most prominent VOCs found in the soil vapor samples. These screening levels are calculated from attenuation factors that are related to the potential for vadose zone VOCs to migrate to groundwater. The calculated screening levels are presented in Table 4-2, and the backup for the calculations is attached as Appendix C.

These soil screening levels have been calculated with the very conservative assumption that the shallow groundwater at the site is considered a drinking water source, and therefore soil levels must be protective of groundwater MCLs. However, due to the clear and documented presence of regional groundwater contamination, this drinking water classification may not be appropriate.

The screening levels have been calculated using the default soil physical property values. Soil analyses will be performed during the Phase II soil vapor survey and the screening levels will be refined as necessary based on these analyses. In addition, the calculations assume that the first-encountered groundwater occurs at 53 feet bgs in the Hollydale Aquifer. The moisture conditions in the overlying Gage Aquifer will be evaluated during Phase II to confirm this assumption.

As stated in the Guidance, the calculated screening levels may be used as:

- Screening criteria below which no remediation is required
- Proposed soil cleanup screening levels
- Performance criteria to evaluate the effectiveness of remedial actions

Alternative, site-specific soil cleanup criteria may also be proposed using health-based risk assessment and/or fate and transport models that contain measures for groundwater protection.

## 5.0 Recommendations

It is recommended that additional soil vapor samples be collected and analyzed to fill data gaps that exist with regard to defining the areal and vertical extent of soil vapor contamination. This sampling is also recommended to improve the basis for estimating the volume of soils that may need remediation via SVE. Figure 5-1 shows the proposed locations of seven additional soil vapor sampling points to better define areal distribution of VOCs (SV-21 through SV-27). Five additional locations are proposed (SV-28 through SV-32) to better define the vertical profile and extent of soil vapor VOCs.

At locations SV-21 through SV-27, soil vapor samples will be collected at depths of approximately 5, 18, and 30 feet. For locations SV-28 through SV-32, samples will be collected at approximate depths of 5, 18, 30, and 45 feet. Sample collection, sample analysis, and analytical QA/QC will be performed in accordance with the existing CASVS Work Plan.

Five additional sampling locations (SV-33 through SV-37) have been added to those described above based on June 12, 2001 DTSC comments on the draft report. Figure 5-1 shows the locations of all sampling locations, and Table 5-1 shows the depths to sample at each location. Additional samples may be collected as necessary to define the lateral and vertical extent of VOCs in the vadose zone.

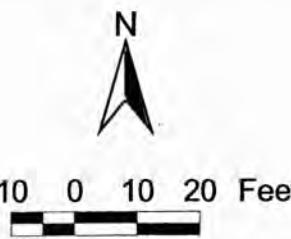
In addition to the locations discussed above, soil vapor samples will also be collected adjacent to monitoring well MW-11 (SV-38). This probe, anticipated to include four different depth intervals, is intended to allow more quantitative correlation, if any, between the high levels of VOCs in this monitoring well and any onsite vadose zone source that may be in the vicinity of this well.

Upon completion of this extension of the soil vapor survey and evaluation of the results, the next proposed phase of work will include installation of semipermanent vapor wells. In addition, a pilot SVE well may be installed and operated to provide a basis for preparing a Corrective Action Soil Vapor Extraction Conceptual Design Plan (CASVECDP), as described in the permit modification. The vapor wells would be used to measure subsurface pressure distributions during pilot testing. These measurements would be used to select a design radius of influence for the SVE system, if appropriate.

## 6.0 References

CDM (Camp Dresser & McKee Inc.). 2001. *Final Soil Vapor Survey Work Plan - Phibro-Tech, Inc. Santa Fe Springs, California.*

California Regional Water Quality Control Board - Los Angeles Region. 1996. *Guidance for VOC-Impacted Sites: Soil Screening Levels.* May.



Soil Vapor Concentrations in ug/L

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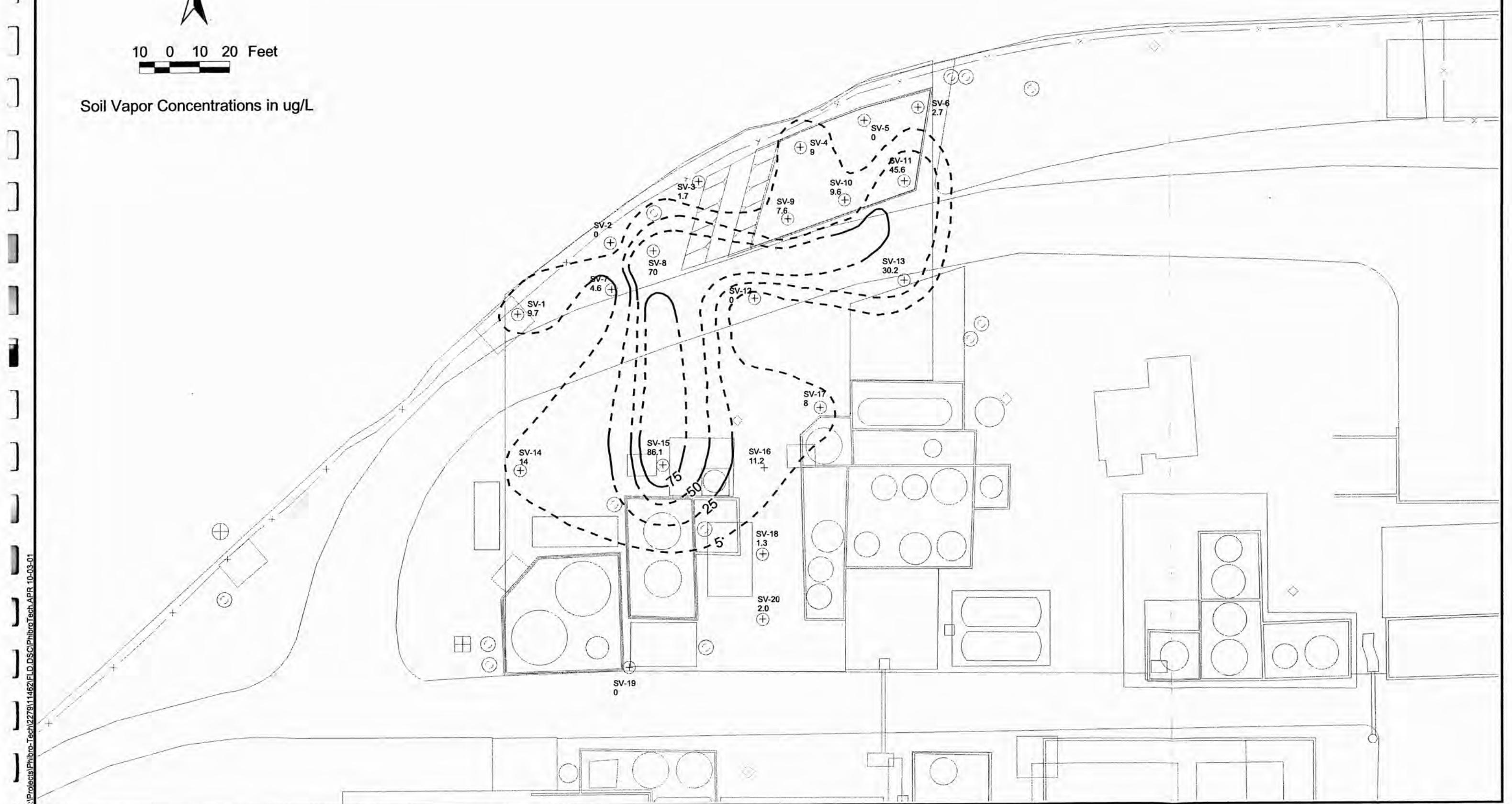


Figure 3-1

Total VOCs (shallow) Soil Vapor Contours  
Phibro-Tech, Inc. - Santa Fe Springs Facility

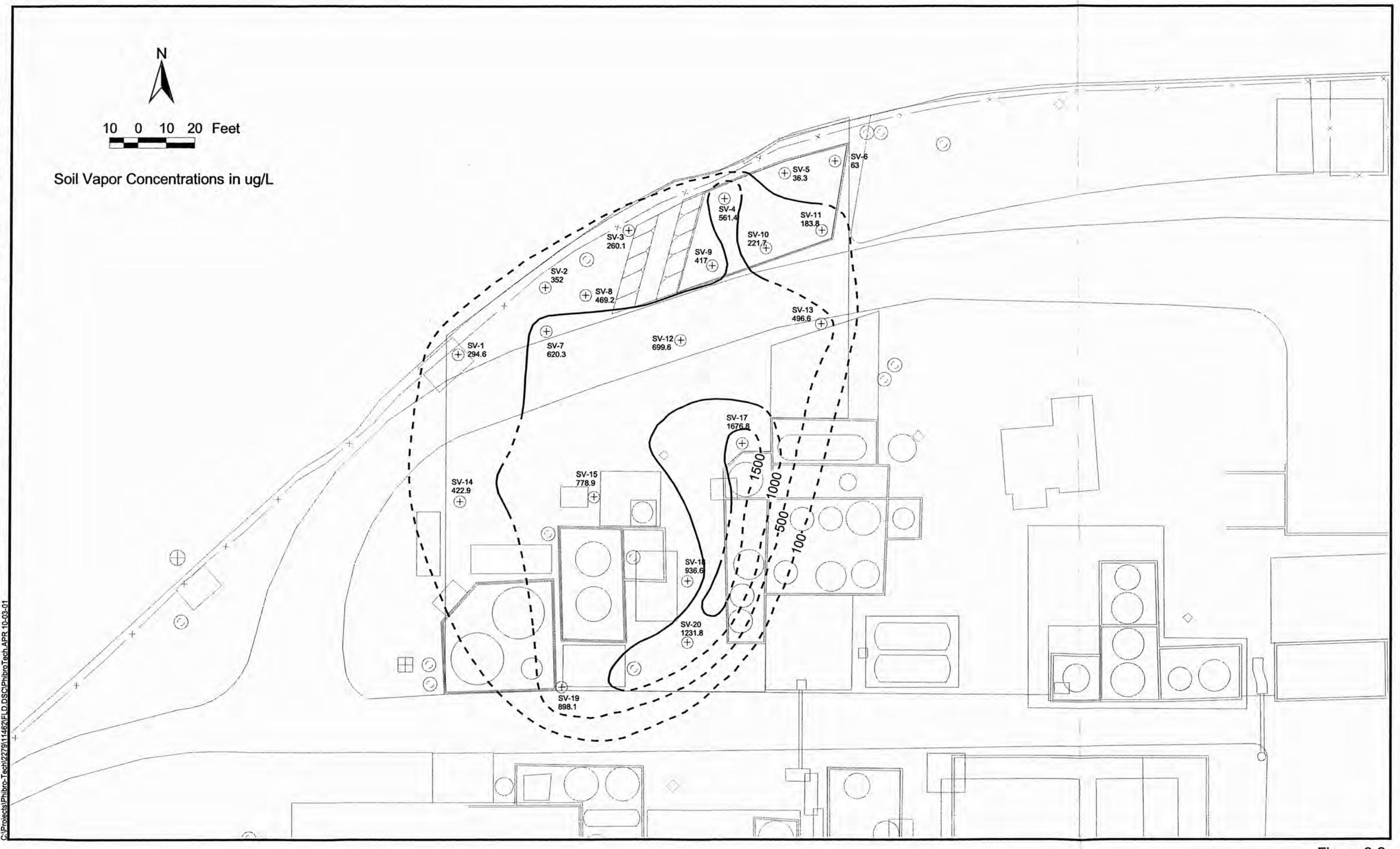
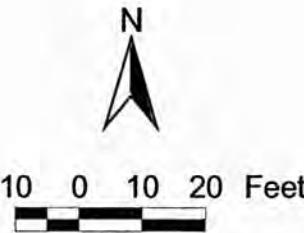


Figure 3-2  
Total VOCs (deep) Soil Vapor Contours  
Phibro-Tech, Inc. - Santa Fe Springs Facility



Figure 3-3

1,1-DCE (shallow) Soil Vapor Contours  
Phibro-Tech, Inc. - Santa Fe Springs Facility



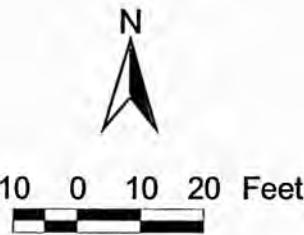
Soil Vapor Concentrations in ug/L

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Figure 3-4

1,1-DCE (deep) Soil Vapor Contours  
Phibro-Tech, Inc. - Santa Fe Springs Facility



Soil Vapor Concentrations in ug/L

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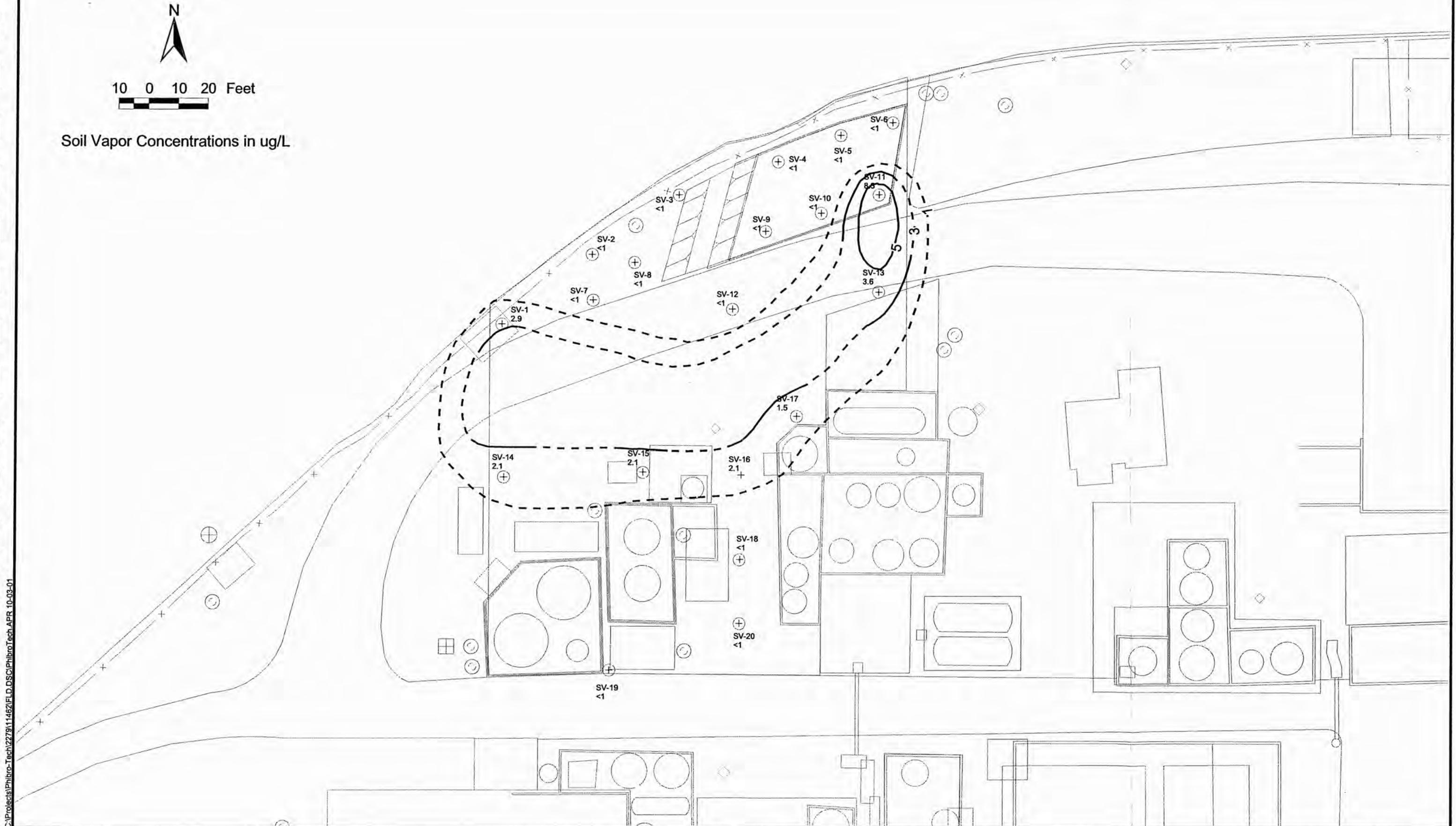


Figure 3-5

1,1-DCA (shallow) Soil Vapor Contours  
Phibro-Tech, Inc. - Santa Fe Springs Facility



Figure 3-6  
1,1-DCA (deep) Soil Vapor Contours  
Phibro-Tech, Inc. - Santa Fe Springs Facility

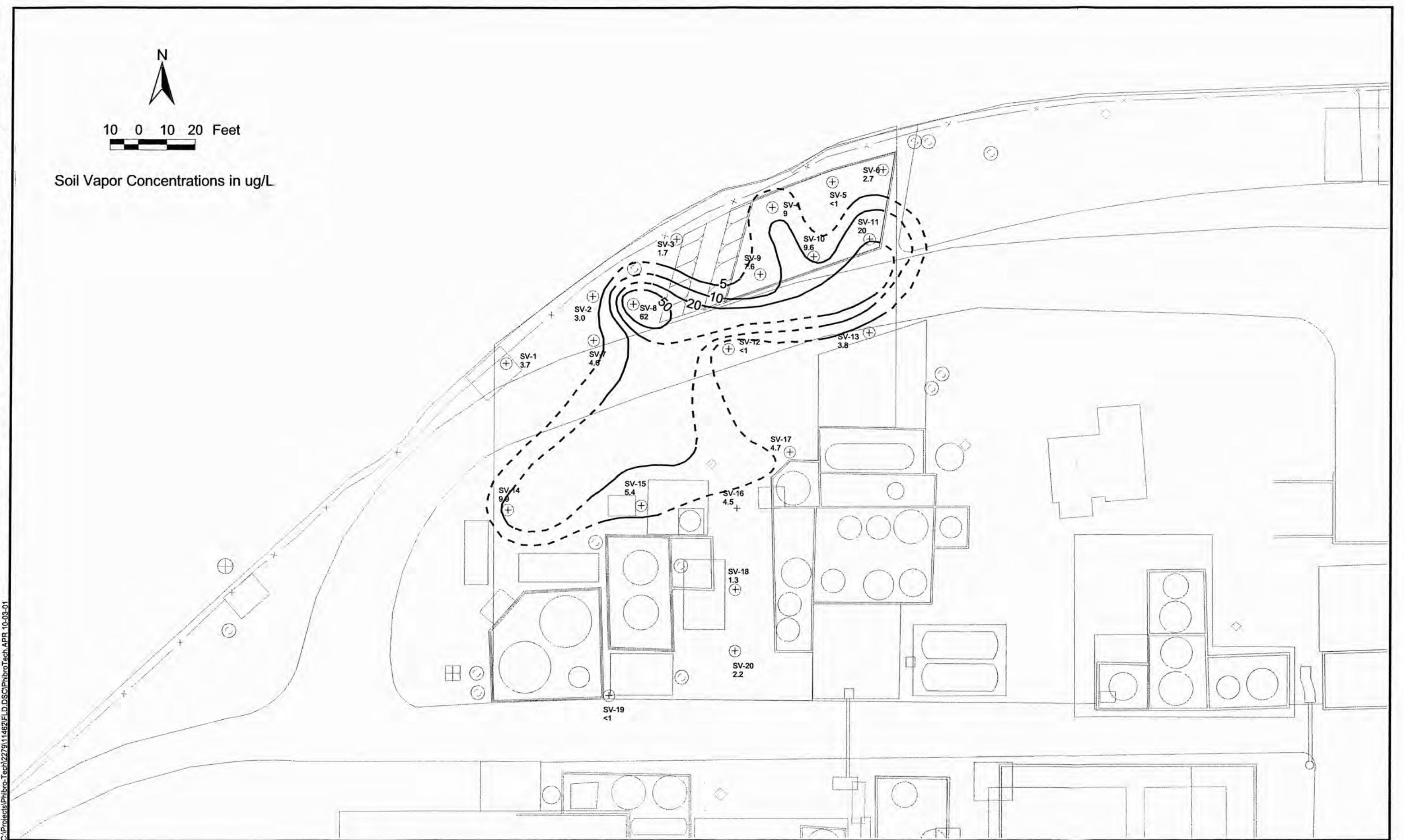


Figure 3-7  
TCE (shallow) Soil Vapor Contours  
Phibro-Tech, Inc. - Santa Fe Springs Facility

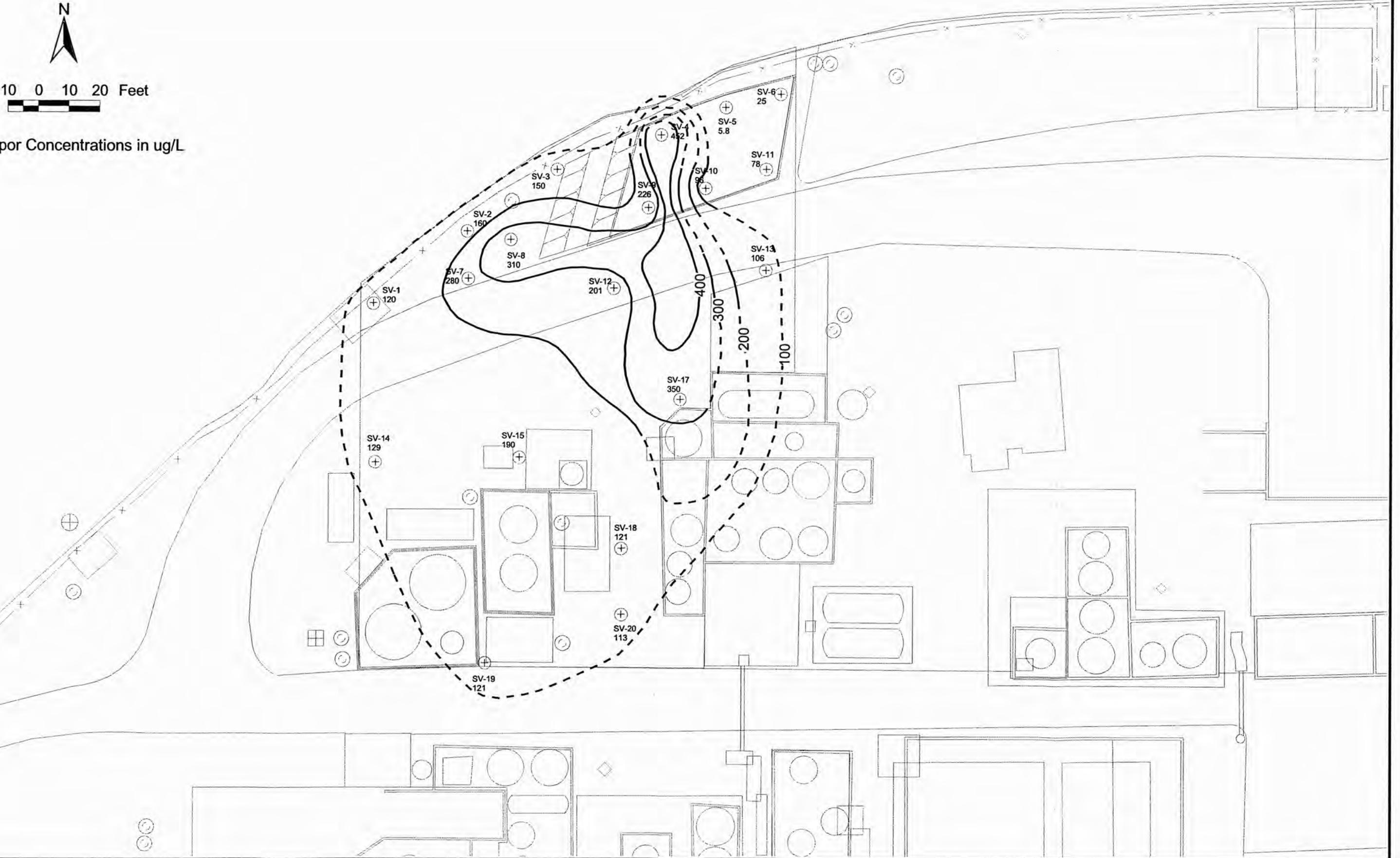


Figure 3-8  
TCE (deep) Soil Vapor Contours  
Phibro-Tech, Inc. - Santa Fe Springs Facility

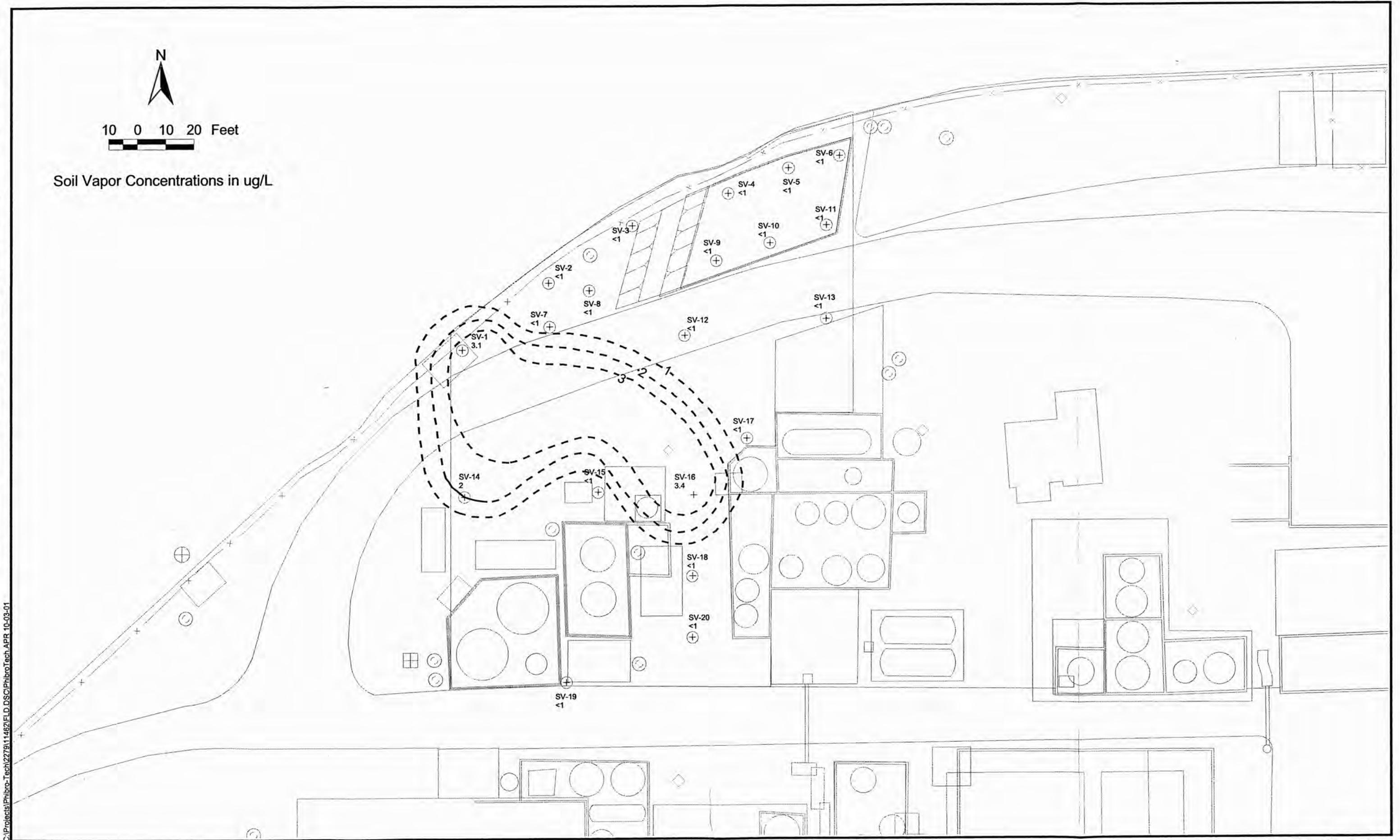
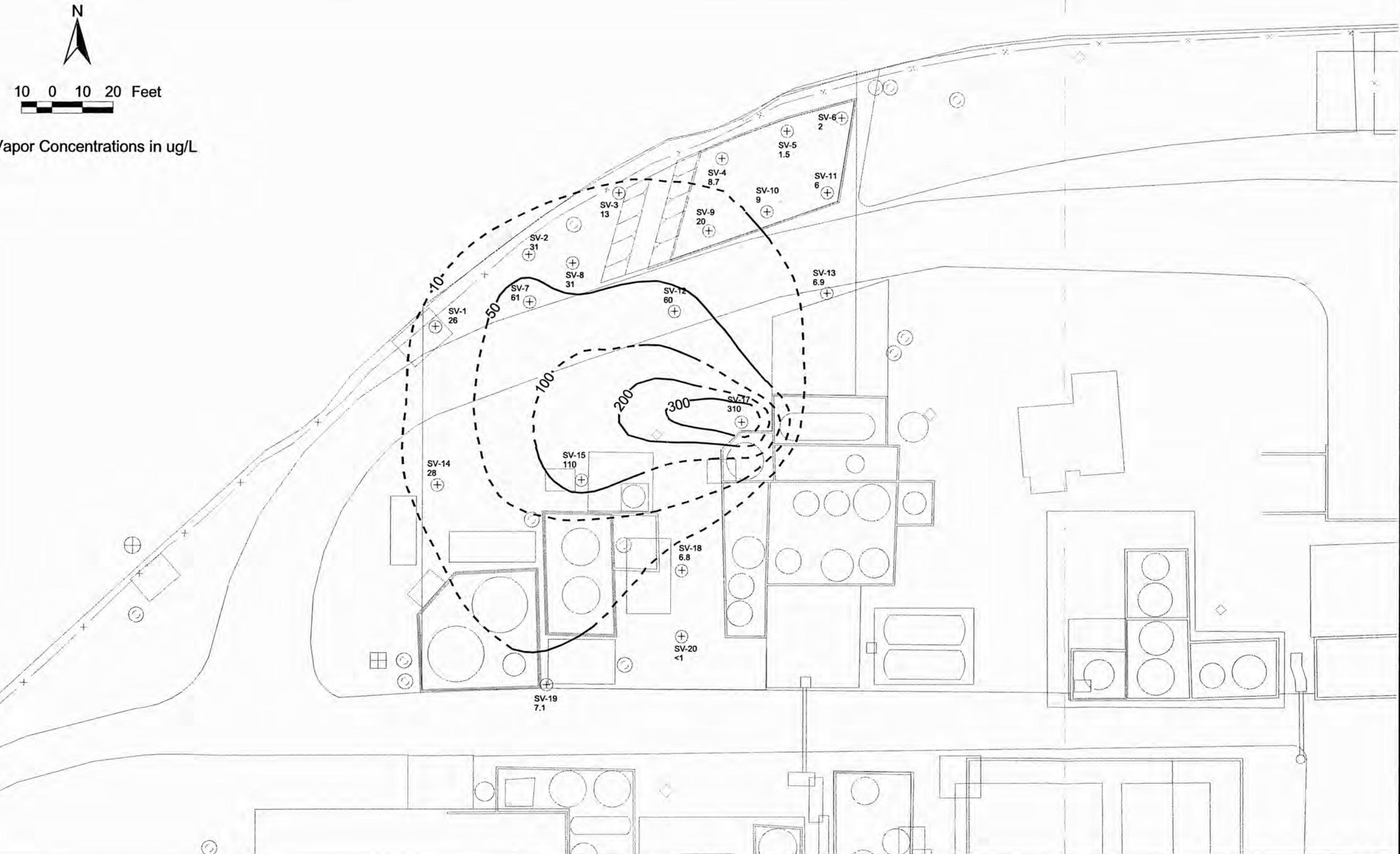


Figure 3-9

1,1,1-TCA (shallow) Soil Vapor Contours  
Phibro-Tech, Inc. - Santa Fe Springs Facility



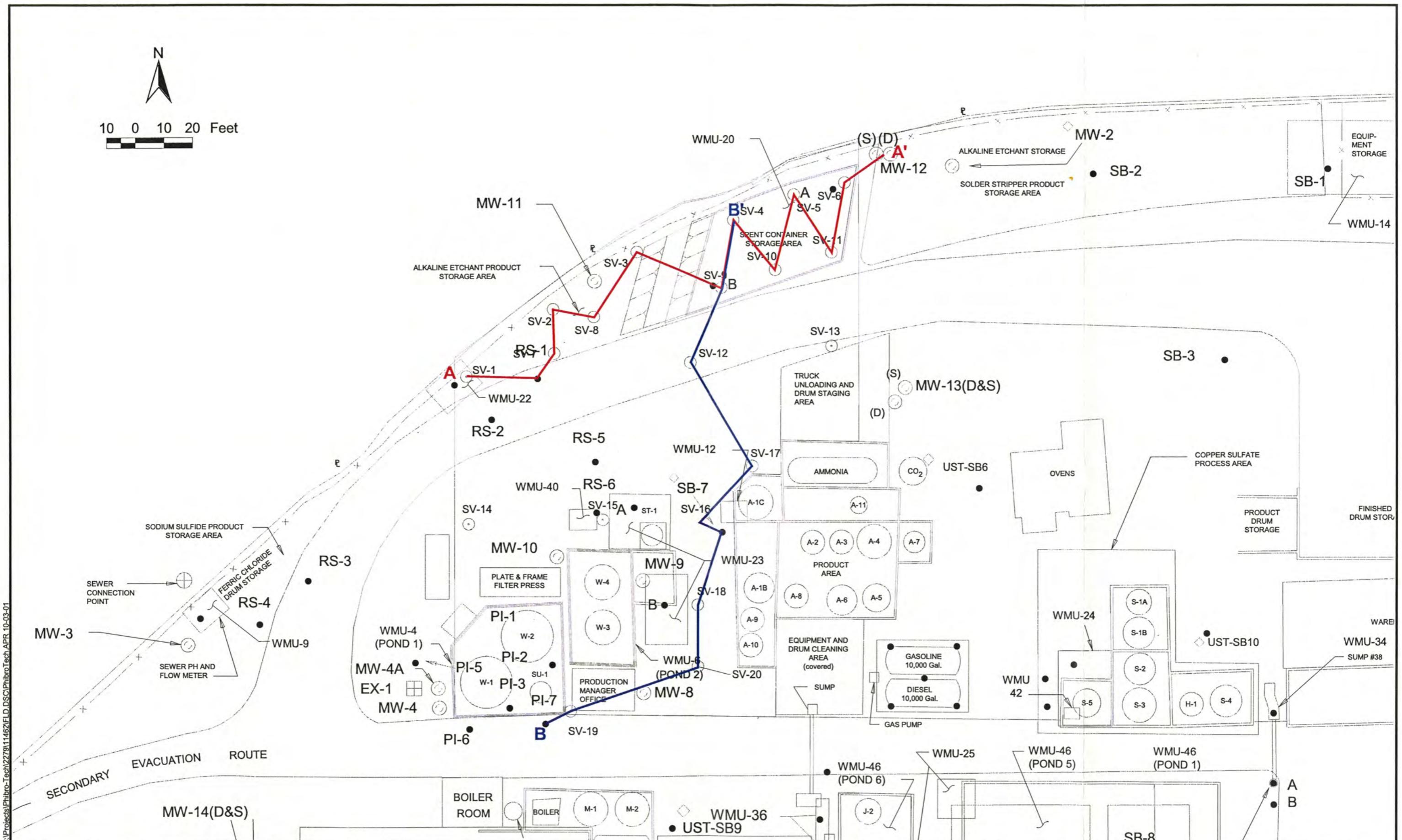


Figure 3-11

## Cross Section Locations

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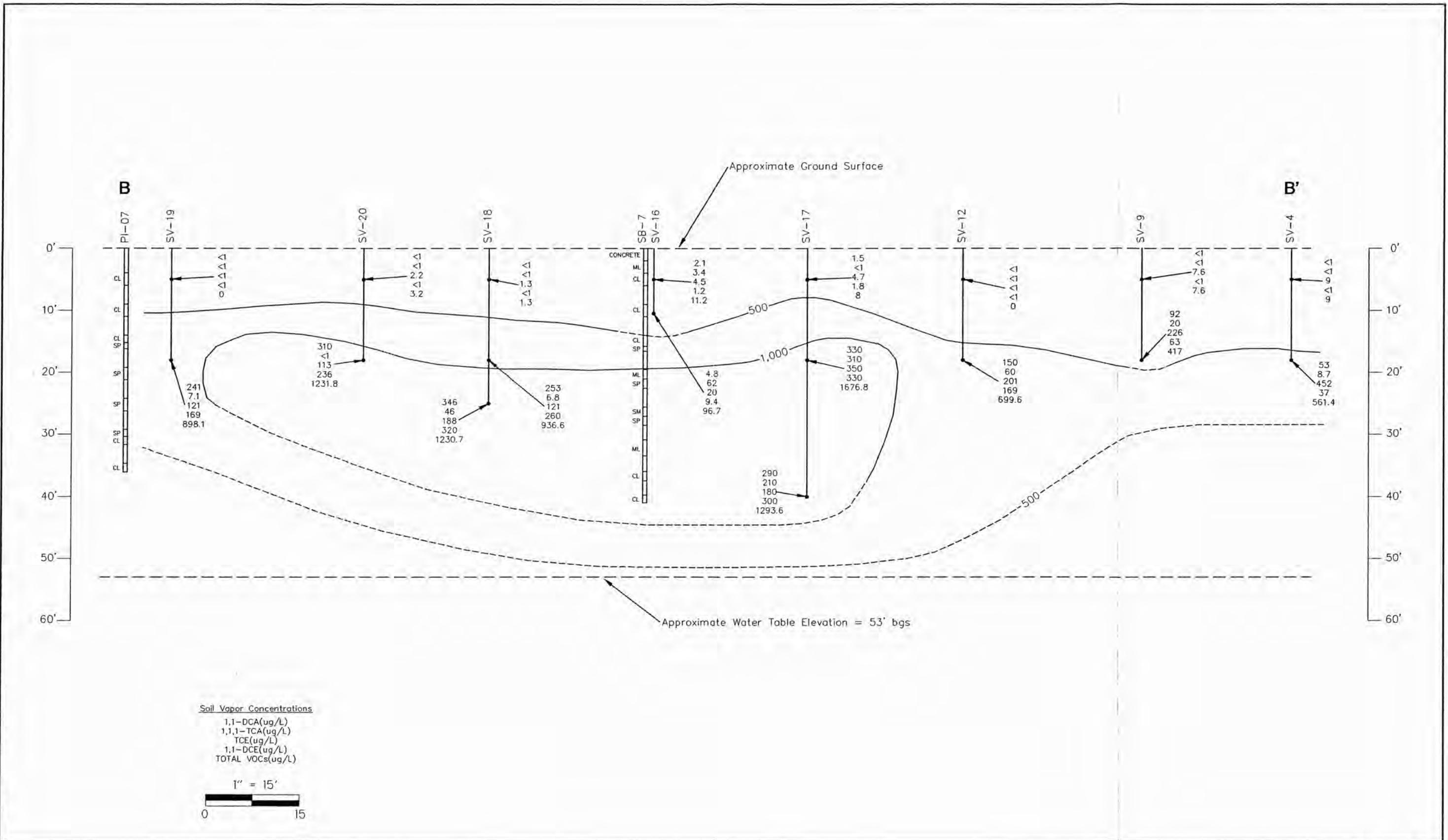
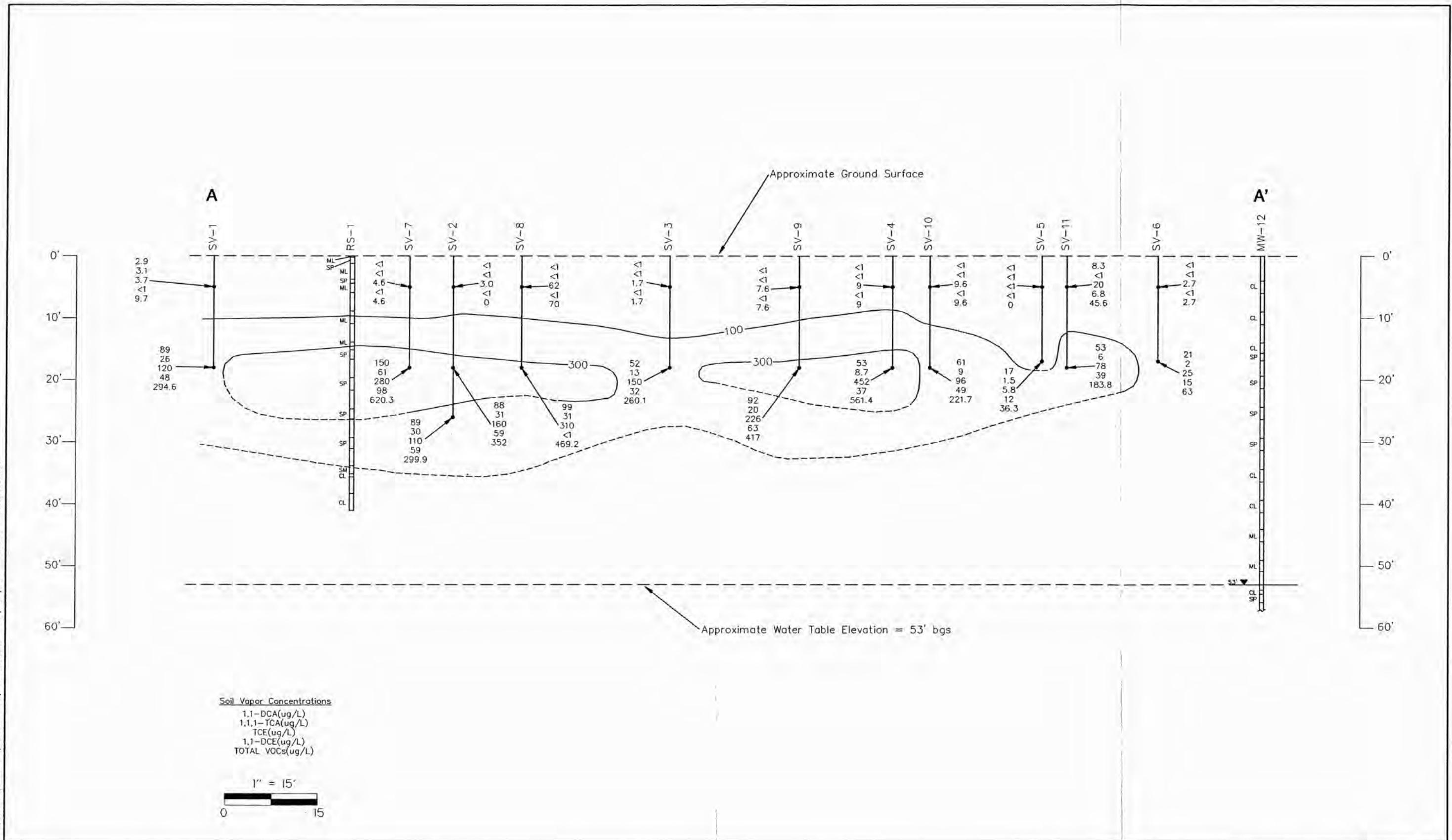


Figure 3-12  
Soil Vapor Concentrations for Cross Section B-B'  
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**Figure 3-13**  
Soil Vapor Concentrations for Cross Section A-A'  
Phibro-Tech, Inc. - Santa Fe Springs Facility

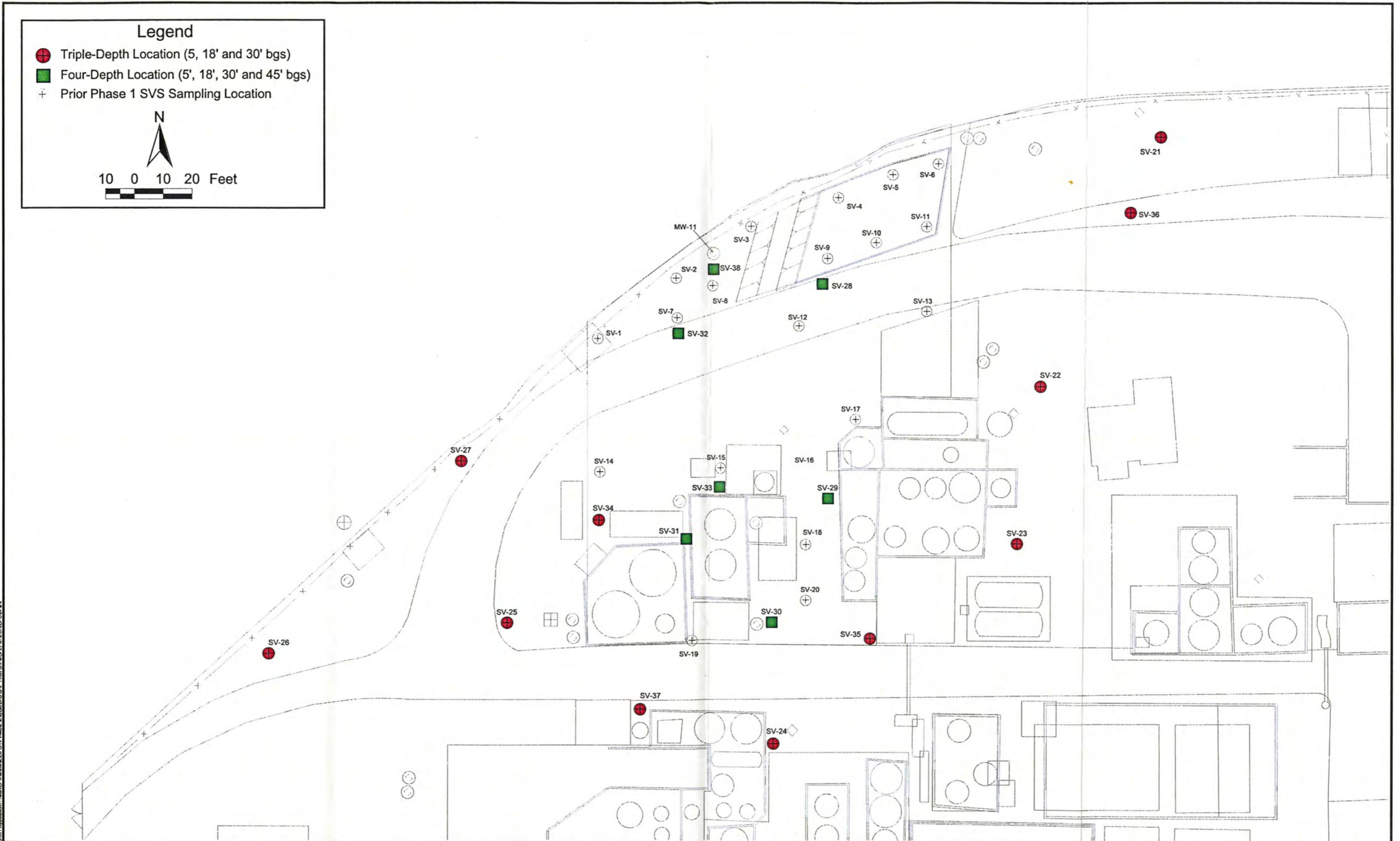


Figure 5-1

Proposed Phase II Soil Vapor Sampling Locations  
Phibro-Tech, Inc. - Santa Fe Springs Facility

**Table 3-1**  
 Soil Gas Survey Analytical Results  
 Phibro-Tech, Inc  
 March 2001

Boring Location	Sample Depth (ft bgs)	Volatile Organic Compounds (VOCs)																									
		Freon 12	Vinyl Chloride	Chloro-ethane	Freon 11	Dichloro-methane	trans-1,2-DCE	1,1-DCA	cis-1,2-DCE	Chloroform	1,1,1-TCA	Carbon Tetrachloride	1,2-DCA	TCE	1,1,2-TCA	PCE	1,1,1,2-PCA	1,1,2,2-PCA	1,1-DCE	Benzene	Toluene	Ethyl Benzene	m/p-Xylene	o-Xylene	Freon-113	Total Detected VOCs	
SV-1	5	ND<1	ND<1	ND<1	ND<1	ND<1	2.9	ND<1	3.1	ND<1	ND<1	ND<1	3.7	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	9.7		
	18	ND<1	ND<1	ND<1	ND<1	ND<1	89	4.5	4.9	26	ND<1	ND<1	120	ND<1	2.2	ND<1	ND<1	48	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	294.6		
SV-2	5	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	3.0	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	0.0		
	18	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	88	8.7	5.3	31	ND<1	ND<1	160	ND<1	2.2	ND<1	ND<1	56	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	351.2	
SV-2	26	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	89	7	4.9	30	ND<1	ND<1	110	ND<1	ND<1	ND<1	ND<1	59	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	299.9	
	26(K)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	83	6.7	4.6	29	ND<1	ND<1	97	ND<1	ND<1	ND<1	ND<1	55	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	275.3	
SV-3	5	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	1.7	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	1.7		
	18	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	52	4.3	2.6	13	ND<1	ND<1	150	ND<1	6.2	ND<1	ND<1	32	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	260.1	
SV-4	5	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	9	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	9.0		
	5(K)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	5.1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	5.1		
SV-4	18	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	53	6.4	2.5	8.7	ND<1	ND<1	450	ND<1	1.5	ND<1	ND<1	37	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	561.4	
	18(K)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	35	3	1.2	5.2	ND<1	ND<1	200	ND<1	ND<1	ND<1	ND<1	24	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	268.4	
SV-4	18(K)(K)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	32	2.7	ND<1	ND<1	ND<1	4.8	ND<1	ND<1	ND<1	ND<1	21	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	242.3		
	5	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	0.0		
SV-5	5(K)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	0.0		
	17	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	17	ND<1	ND<1	ND<1	ND<1	1.5	ND<1	ND<1	5.8	ND<1	ND<1	12	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	36.3	
SV-6	5	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	2.7		
	17A	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	6.8	ND<1	ND<1	ND<1	ND<1	9	ND<1	ND<1	ND<1	ND<1	5.9	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	21.7	
SV-6	17B	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	12	ND<1	ND<1	ND<1	ND<1	13	ND<1	ND<1	ND<1	ND<1	9.7	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	36.6	
	17C	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	21	ND<1	ND<1	ND<1	ND<1	25	ND<1	ND<1	ND<1	ND<1	15	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	63.0	
SV-7	5	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	4.6		
	18	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	150	15	11	61	ND<1	ND<1	280	ND<1	5.3	ND<1	ND<1	98	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	620.3	
SV-8	5	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	1.2	ND<1	6.8	ND<1	ND<1	ND<1	ND<1	62	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	70.0		
	5(K)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	1.1	ND<1	6.1	ND<1	ND<1	ND<1	ND<1	56	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	64.2		
SV-8	18	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	99	23	6.2	31	ND<1	ND<1	310	ND<1	2.0	ND<1	ND<1	60	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	469.2
	18(K)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	92	5.7	3.8	19	ND<1	ND<1	210	ND<1	3.1	ND<1	ND<1	60	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	393.6
SV-9	5	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	7.6		
	18	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	92	5.8	3.7	20	ND<1	ND<1	230	ND<1	2.5	ND<1	ND<1	63							

**Table 3-2. Offsite Lab Confirmation Results**

Volatile Organic Compound	Off Site Lab Result ppbv	On-Site Lab Result ug/L
1,1-DCE	94,000	379.0
1,1-DCA	93,000	382.7
TCE	52,000	284.0
Chloroethane	15,000	40.2
cis-DCE	14,000	56.4
trans-DCE	13,000	52.4
benzene	2,700	8.8
vinyl chloride	1,700	4.4
PCE	380	2.6
Freon 11	<320	<1.8
toluene	<320	<1.2
ethylbenzene	<320	<1.4
Freon 113	<320	<2.5
dichloromethane	<320	<1.1
<b>Total</b>	<b>1,210.5</b>	<b>1,227.8</b>

**Table 4-1. Comparison of Soil Vapor and Groundwater VOC Concentrations**

Volatile Organic Compound	MW-9 Groundwater Result (ug/L of water)	SV-18 Soil Vapor Result at 25 Feet (ug/L of vapor)	MW-4 Groundwater Result (ug/L of water)	SV-19 Soil Vapor Result at 18 Feet (ug/L of vapor)	MW-11 Groundwater Result (ug/L of water)	SV-2 Soil Vapor Result at 26 Feet (ug/L of vapor)	SV-3 Soil Vapor Result at 18 Feet (ug/L of vapor)	SV-8 Soil Vapor Result at 18 Feet (ug/L of vapor)
TCE	160	188	170	121	2900	110	150	310
1,1-DCA	130	346	74	241	360	89	52	99
1,2-DCA	96	320	99	<1	220	<1	<1	<1
1,1-DCE	37	<1	<50	169	480	59	32	<1
ethylbenzene	29	3.5	2500	2.5	<50	<1	<1	<1
chloroform	22	13	<50	3.1	910	4.9	2.6	6.2
1,1,1-TCA	15	46	<50	7.1	<50	30	13	31
cis-DCE	11	24	130	31	<50	7	4.3	23
PCE	<5	2.6	<50	1.2	69	<1	6.2	2
Freon 113	<5	297	<50	282	<50	<1	<1	<1
trans-DCE	<5	14	<50	22	<50	<1	<1	<1
m/p xylenes	<5	8.1	<50	2.1	<50	<1	<1	<1
1,1,2-TCA	<5	2.6	<50	<1	<50	<1	<1	<1
dichloromethane	<5	6.3	<50	3.3	<50	<1	<1	<1
Freon 11	<5	1.6	<50	<1	<50	<1	<1	<1
chloroethane	<5	<1	<50	1.6	<100	<1	<1	<1
benzene	<5	<1	<50	5.6	<50	<1	<1	<1
carbon tetrachloride	<5	<1	<50	<1	980	<1	<1	<1
toluene	<5	<1	<50	4.1	<50	<1	<1	<1

Shaded rows indicate results that do not support groundwater as the sole source of VOCs in soil vapor.

Groundwater sample collected 10/19/00.

**Table 4-2 Calculated Soil Cleanup Screening Levels**

Volatile Organic Compound	Calculated Soil Cleanup Screening Level
1,1-DCA	9.15 µg/kg
1,1-DCE	29.07 µg/kg
TCE	36.79 µg/kg
1,1,1-TCA	42.07 µg/kg

**Table 5-1 Soil Vapor Sampling Depths**

Sample Location	5 feet bgs	18 feet bgs	30 feet bgs	45 feet bgs
SV-21 - SV-27	x	x	x	
SV-28 - SV-32	x	x	x	x
SV-33	x	x	x	x
SV-34	x	x	x	
SV-35	x	x	x	
SV-36	x	x	x	
SV-37	x	x	x	
SV-38	x	x	x	x

bgs - below ground surface

# **Appendix A**

## **Interphase's Analytical Report**



**INTERPHASE**  
ENVIRONMENTAL, INC.

6200 Peachtree Street  
Los Angeles, CA 90040  
323•278•7700 ~ 800•457•3300  
FAX 323•278•7707



# INTERPHASE ENVIRONMENTAL, INC.

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MOBILE LABORATORIES AND DIRECT PUSH DRILLING

Friday, March 16, 2001

Ms. Sharon Wallin  
Camp Dresser & McKee Inc.  
18881 Von Karman Ave., Suite 650  
Irvine, CA 92715

Dear Ms. Wallin:

Enclosed is the analytical report for the samples collected and analyzed by InterPhase Environmental, Inc. for the following project.

Project Name: Phibro-Tech, Santa Fe Springs, CA  
Project Number: 01043

The report consists of the following sections;

- I. Sample Description;
- II. Laboratory Case Narrative and Chain of Custody Forms;
- III. Analytical Results;
- IV. Laboratory Certification.

If you have any questions regarding the results, please call me at (800) 457-3300.

Sincerely,  
**InterPhase Environmental**

David Q. Feng, Ph.D.  
Director of Laboratories



## Analytical Report

InterPhase Project Number: 01043

Analysis Performed for: Camp Dressor and McKee, Inc.

Project Name: Phibro-Tech, Santa Fe Springs, CA

### SAMPLE DESCRIPTION AND ANALYSIS REQUESTED

Date	Sample ID	InterPhase Lab	Analysis Requested	Date	Sample ID	InterPhase Lab	Analysis Requested
3/3/01	FIELDBLANK	Phase 17 GC-I	LARWQCB WIP*	03/03/01	SV-9-18'	Phase 17 GC-II	LARWQCB WIP
3/3/01	SV-6-5'	Phase 17 GC-I	LARWQCB WIP	03/03/01	FIELDBLANK	Phase 17 GC-II	LARWQCB WIP
3/3/01	SV-6-17' A	Phase 17 GC-I	LARWQCB WIP	03/04/01	SV-19-5'	Phase 17 GC-II	LARWQCB WIP
3/3/01	SV-6-17' B	Phase 17 GC-I	LARWQCB WIP	03/04/01	SV-19-18'	Phase 17 GC-II	LARWQCB WIP
3/3/01	SV-6-17' C	Phase 17 GC-I	LARWQCB WIP	03/04/01	SV-20-18'	Phase 17 GC-II	LARWQCB WIP
3/3/01	SV-5-5'	Phase 17 GC-I	LARWQCB WIP	03/04/01	SV-18-5'	Phase 17 GC-II	LARWQCB WIP
3/3/01	SV-5-17'	Phase 17 GC-I	LARWQCB WIP	03/04/01	FIELDBLANK2	Phase 17 GC-II	LARWQCB WIP
3/3/01	SV-4-5'	Phase 17 GC-I	LARWQCB WIP	03/04/01	SV-12-5'	Phase 17 GC-II	LARWQCB WIP
3/3/01	SV-4-18'	Phase 17 GC-I	LARWQCB WIP	03/04/01	SV-13-5'	Phase 17 GC-II	LARWQCB WIP
3/3/01	SV-11-5'	Phase 17 GC-I	LARWQCB WIP	03/04/01	SV-14-5'	Phase 17 GC-II	LARWQCB WIP
3/3/01	SV-11-18'	Phase 17 GC-I	LARWQCB WIP	03/05/01	SV-15-18'	Phase 17 GC-II	LARWQCB WIP
3/3/01	SV-10-5'	Phase 17 GC-I	LARWQCB WIP	03/05/01	SV-1-18'	Phase 17 GC-II	LARWQCB WIP
3/3/01	SV-10-18'	Phase 17 GC-I	LARWQCB WIP	03/05/01	SV-17-18'	Phase 17 GC-II	LARWQCB WIP
3/3/01	SV-9-5'	Phase 17 GC-I	LARWQCB WIP	03/05/01	SV-17-28'	Phase 17 GC-II	LARWQCB WIP
3/4/01	SV-20-5'	Phase 17 GC-I	LARWQCB WIP	03/05/01	SV-17-40'	Phase 17 GC-II	LARWQCB WIP
3/4/01	SV-18-25'	Phase 17 GC-I	LARWQCB WIP	03/05/01	SV-8-18'	Phase 17 GC-II	LARWQCB WIP
3/4/01	SV-18-18'	Phase 17 GC-I	LARWQCB WIP	03/05/01	SV-7-18'	Phase 17 GC-II	LARWQCB WIP
3/4/01	SV-16-5'	Phase 17 GC-I	LARWQCB WIP	03/05/01	SV-2-18'	Phase 17 GC-II	LARWQCB WIP
3/4/01	SV-16-10.5'	Phase 17 GC-I	LARWQCB WIP	03/05/01	SV-2-26'	Phase 17 GC-II	LARWQCB WIP
3/4/01	SV-12-18'	Phase 17 GC-I	LARWQCB WIP	03/05/01	SV-3-18'	Phase 17 GC-II	LARWQCB WIP
3/4/01	SV-13-18'	Phase 17 GC-I	LARWQCB WIP				
3/4/01	SV-14-18'	Phase 17 GC-I	LARWQCB WIP				
3/5/01	SV-15-5'	Phase 17 GC-I	LARWQCB WIP				
3/5/01	SV-1-5'	Phase 17 GC-I	LARWQCB WIP				
3/5/01	SV-17-5'	Phase 17 GC-I	LARWQCB WIP				
3/5/01	SV-17-40'	Phase 17 GC-I	LARWQCB WIP				
3/5/01	SV-7-5'	Phase 17 GC-I	LARWQCB WIP				
3/5/01	FIELDBLANK3	Phase 17 GC-I	LARWQCB WIP				
3/5/01	SV-8-5'	Phase 17 GC-I	LARWQCB WIP				
3/5/01	SV-2-5'	Phase 17 GC-I	LARWQCB WIP				
3/5/01	SV-3-5'	Phase 17 GC-I	LARWQCB WIP				

\*Los Angeles Regional Water Quality Control Board (LARWQCB) for active soil gas investigations under the Well Investigation Program (WIP), (February 1997).



## II. LABORATORY CASE NARRATIVE AND CHAIN OF CUSTODY FORMS

InterPhase Project Number: 01043

Analysis Performed for: Camp Dressor and McKee, Inc.

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All samples were collected in gas tight syringes and analyzed on-site by InterPhase crew members from March 3<sup>rd</sup> through March 5<sup>th</sup>, 2001. Two gas chromatographs were used for the analyses.

All the samples in this report met all laboratory quality control procedures. InterPhase followed analytical protocols acceptable to the Los Angeles Regional Water Quality Control Board (LARWQCB) for active soil gas investigation under the Well Investigation Program (WIP), (February 1997).

## III. ANALYTICAL RESULTS

*Table IA & B: Analytical Result of Samples* presents the measured analyte concentrations of all samples and ambient air analyzed during the investigation. Concentrations are reported in micrograms per liter ( $\mu\text{g/L}$ ) for Volatile Organic Compounds (VOCs). Surrogate recoveries are also reported in *Table I*. All surrogate recoveries are within the control limits (70% to 130%), except for some matrix interference.

*Table II A & B: Initial Calibration Results* presents the multi-point calibration performed on January 17, 2001 and on March 01, 2001 for GC-I and GC-II, respectively. For all target compounds, the percent relative standard deviations (%RSD) for all target compounds are within the control limits required by the QA/QC objective.

*Table III A & B: LCS Check Results* presents the middle concentration check of the calibration results by a Laboratory Control Standards to validate the calibration for both GC-I and GC-II, respectively. The percent differences of responses for the calibration and the LCS check are within control limits for all target analytes. Also, the results for the daily LCS check requested by client are presented in these tables.



*Table IV A & B: Daily Calibration Check Results* presents the Mid-point Calibration Check performed each day from March 3<sup>rd</sup> through the 5<sup>th</sup>, 2001, before sample analyses were started. For all checked compounds, the percent deviation of response factor was within control limits required by the QA/QC objective.

#### **IV. LABORATORY CERTIFICATION**

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I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness.

A handwritten signature in black ink, appearing to read "David Q. Feng".

---

David Q. Feng, Ph.D.  
Director of Laboratories

**Table IA. Analytical Result of Samples**

Lab ID: Phase 17 GC-1

Operator: Daniel Alvarez

**INTERPHASE**  
ENVIRONMENTAL, INC.

Sample ID :	SB010130	AA010303	FIELD BLANK	SV-6-5'	SV-6-17' A	SV-6-17' B	SV-6-17' C	SV-5-5'	SV-5-5'/DUP	SV-5-17'
Date Collected :	3/3/01	3/3/01	3/3/01	3/3/01	3/3/01	3/3/01	3/3/01	3/3/01	3/3/01	3/3/01
Time Collected :	6:25	7:10	8:55	9:14	9:35	9:36	10:05	10:52	10:52	11:36
Date Analyzed :	3/3/01	3/3/01	3/3/01	3/3/01	3/3/01	3/3/01	3/3/01	3/3/01	3/3/01	3/3/01
Time Analyzed :	6:27	7:13	9:02	9:21	9:41	10:02	10:23	10:57	11:19	11:41
Volume Analyzed (ml) :	1	1	1	1	1	1	1	1	1	1
Compound Name	Detector	RT (min)								
Dichlorodifluoromethane	ELCD	1.83	<1	<1	<1	<1	<1	<1	<1	<1
Vinyl Chloride	ELCD	2.33	<1	<1	<1	<1	<1	<1	<1	<1
Chloroethane	ELCD	3.00	<1	<1	<1	<1	<1	<1	<1	<1
Trichlorofluoromethane	ELCD	3.38	<1	<1	<1	<1	<1	<1	<1	<1
Dichloromethane	ELCD	4.62	<1	<1	<1	<1	<1	<1	<1	<1
trans-1,2-Dichloroethene	ELCD	4.97	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	ELCD	5.48	<1	<1	<1	6.8	12	21	<1	<1
cis-1,2-Dichloroethene	ELCD	6.23	<1	<1	<1	<1	<1	<1	<1	<1
Chloroform	ELCD	6.66	<1	<1	<1	<1	<1	<1	<1	<1
1,1,1-Trichloroethane	ELCD	6.90	<1	<1	<1	<1	<1	2.0	<1	<1
Carbon Tetrachloride	ELCD	7.15	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloroethane	ELCD	7.44	<1	<1	<1	<1	<1	<1	<1	<1
Trichloroethene	ELCD	8.43	<1	<1	2.7	9.0	13	25	<1	<1
1,1,2-Trichloroethane	ELCD	11.40	<1	<1	<1	<1	<1	<1	<1	<1
Tetrachloroethene	ELCD	11.69	<1	<1	<1	<1	<1	<1	<1	<1
1,1,1,2-Tetrachloroethane	ELCD	13.65	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	ELCD	15.87	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethene	PID	3.99	<1	<1	<1	5.9	9.7	15	<1	<1
Benzene	PID	7.39	<1	<1	<1	<1	<1	<1	<1	<1
Toluene	PID	10.59	<1	<1	<1	<1	<1	<1	<1	<1
Ethyl Benzene	PID	13.70	<1	<1	<1	<1	<1	<1	<1	<1
m/p-Xylene	PID	13.98	<1	<1	<1	<1	<1	<1	<1	<1
o-Xylene	PID	14.76	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2-Trichlorotrifluoroethane	FID	3.98	<1	<1	<1	<1	1.9	<1	<1	<1
% C13DCPE Recovery (ELCD)		10.02	98	101	86	85	80	79	81	86
% C13DCPE Recovery (PID)		9.98	98	96	95	98	103	103	99	98
% 4CLTOL Recovery (PID)		16.21	98	99	93	105	107	107	102	105
% C13DCPE Recovery (FID)		8.54	104	103	101	102	102	102	102	103
% 4CLTOL Recovery (FID)		15.44	106	107	101	110	111	111	108	111

Unit of Concentration is ug/L

NA -- Not Applicable, or Not Available



**INTERPHASE**  
ENVIRONMENTAL, INC.

**Table IA. Analytical Result of Samples**

Lab ID: Phase 17 GC-1

Operator: Daniel Alvarez

Sample ID :	SV-4-5'	SV-4-5'/DUP	SV-4-18'	SV-4-18'/DUP	SV-4-18'/DUP/DUP	SV-11-5'	SV-11-18'	SV-10-5'	SV-10-18'
Date Collected :	3/3/01	3/3/01	3/3/01	3/3/01	3/3/01	3/3/01	3/3/01	3/3/01	3/3/01
Time Collected :	13:15	13:15	13:42	14:00	14:00	15:09	15:22	16:14	16:32
Date Analyzed :	3/3/01	3/3/01	3/3/01	3/3/01	3/3/01	3/3/01	3/3/01	3/3/01	3/3/01
Time Analyzed :	13:20	13:20	13:50	14:10	14:30	15:14	15:30	16:23	16:41
Volume Analyzed (ml) :	1	1	1	1	1	1	1	1	1
Compound Name	Detector	RT (min)							
Dichlorodifluoromethane	ELCD	1.83	<1	<1	<1	<1	<1	<1	<1
Vinyl Chloride	ELCD	2.33	<1	<1	<1	<1	<1	<1	<1
Chloroethane	ELCD	3.00	<1	<1	<1	<1	<1	<1	<1
Trichlorofluoromethane	ELCD	3.38	<1	<1	<1	<1	<1	<1	<1
Dichloromethane	ELCD	4.62	<1	<1	<1	<1	<1	<1	<1
trans-1,2-Dichloroethene	ELCD	4.97	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	ELCD	5.48	<1	<1	53	35	32	8.3	53
cis-1,2-Dichloroethene	ELCD	6.23	<1	<1	6.4	3.0	2.7	8.4	<1
Chloroform	ELCD	6.66	<1	<1	2.5	1.2	<1	<1	2.2
1,1,1-Trichloroethane	ELCD	6.90	<1	<1	8.7	5.2	4.8	<1	6.0
Carbon Tetrachloride	ELCD	7.15	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloroethane	ELCD	7.44	<1	<1	<1	<1	<1	<1	<1
Trichloroethene	ELCD	8.43	9.0	5.1	450	200	180	20	78
1,1,2-Trichloroethane	ELCD	11.40	<1	<1	<1	<1	<1	<1	<1
Tetrachloroethene	ELCD	11.69	<1	<1	1.5	<1	<1	<1	<1
1,1,1,2-Tetrachloroethane	ELCD	13.65	<1	<1	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	ELCD	15.87	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethene	PID	3.99	<1	<1	37	24	21	6.8	39
Benzene	PID	7.39	<1	<1	<1	<1	<1	2.1	<1
Toluene	PID	10.59	<1	<1	<1	<1	<1	<1	<1
Ethyl Benzene	PID	13.70	<1	<1	<1	<1	<1	<1	<1
m/p-Xylene	PID	13.98	<1	<1	<1	<1	<1	<1	<1
o-Xylene	PID	14.76	<1	<1	<1	<1	<1	<1	<1
1,1,2-Trichlorotrifluoroethane	FID	3.98	<1	<1	2.3	<1	1.8	<1	5.5
% C13DCPE Recovery (ELCD)		10.02	91	90	90	93	93	91	91
% C13DCPE Recovery (PID)		9.98	96	96	97	96	96	96	100
% 4CLTOL Recovery (PID)		16.21	96	100	102	102	101	101	96
% C13DCPE Recovery (FID)		8.54	101	102	102	102	102	102	102
% 4CLTOL Recovery (FID)		15.44	104	109	110	110	110	107	107

Unit of Concentration is ug/L

NA -- Not Applicable, or Not Available



**INTERPHASE**  
ENVIRONMENTAL, INC

**Table IA. Analytical Result of Samples**

Lab ID: Phase 17 GC-1

Operator: Daniel Alvarez

Sample ID :	SV-9-5'	SB010304	SV-20-5'	SV-20-5'/DUP	AA010304	SV-18-25'	SV-18-25'/DUP	SV-18-18'	SV-16-5'	SV-16-10.5'
Date Collected :	3/3/01	3/4/01	3/4/01	3/4/01	3/4/01	3/4/01	3/4/01	3/4/01	3/4/01	3/4/01
Time Collected :	17:06	6:37	8:42	8:42	9:45	10:21	10:21	11:07	11:40	13:23
Date Analyzed :	3/3/01	3/4/01	3/4/01	3/4/01	3/4/01	3/4/01	3/4/01	3/4/01	3/4/01	3/4/01
Time Analyzed :	17:11	6:37	8:47	8:47	9:49	10:25	10:45	11:12	11:46	13:29
Volume Analyzed (ml) :	1	1	1	1	1	1	1	1	1	1
Compound Name	Detector	RT (min)								
Dichlorodifluoromethane	ELCD	1.83	<1	<1	<1	<1	<1	<1	<1	<1
Vinyl Chloride	ELCD	2.33	<1	<1	<1	<1	1.8	1.7	1.4	<1
Chloroethane	ELCD	3.00	<1	<1	<1	<1	27	26	8.6	<1
Trichlorofluoromethane	ELCD	3.38	<1	<1	<1	<1	1.6	1.6	1.0	<1
Dichlormethane	ELCD	4.62	<1	<1	<1	<1	6.3	5.8	4.4	<1
trans-1,2-Dichloroethene	ELCD	4.97	<1	<1	<1	<1	14	13	9.3	<1
1,1-Dichloroethane	ELCD	5.48	<1	<1	<1	<1	350	330	250	2.1
cis-1,2-Dichloroethene	ELCD	6.23	<1	<1	<1	<1	24	22	16	<1
Chloroform	ELCD	6.66	<1	<1	<1	<1	13	13	5.0	<1
1,1,1-Trichloroethane	ELCD	6.90	<1	<1	<1	<1	46	46	6.8	3.4
Carbon Tetrachloride	ELCD	7.15	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloroethane	ELCD	7.44	<1	<1	<1	<1	<1	<1	<1	<1
Trichloroethene	ELCD	8.43	7.6	<1	2.0	3.2	<1	190	190	120
1,1,2-Trichloroethane	ELCD	11.40	<1	<1	<1	<1	<1	<1	<1	<1
Tetrachloroethene	ELCD	11.69	<1	<1	<1	<1	<1	2.6	2.0	2.0
1,1,1,2-Tetrachloroethane	ELCD	13.65	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	ELCD	15.87	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethene	PID	3.99	<1	<1	<1	<1	<1	320	300	260
Benzene	PID	7.39	<1	<1	<1	<1	<1	<1	8.6	<1
Toluene	PID	10.59	<1	<1	<1	<1	<1	<1	<1	<1
Ethyl Benzene	PID	13.70	<1	<1	<1	<1	<1	3.5	2	<1
m/p-Xylene	PID	13.98	<1	<1	<1	<1	<1	8.1	7.6	3.5
o-Xylene	PID	14.76	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2-Trichlorotrifluoroethane	FID	3.98	<1	<1	<1	<1	<1	300	270	240
% C13DCPE Recovery (ELCD)		10.02	85	91	87	90	88	94	97	96
% C13DCPE Recovery (PID)		9.98	96	98	98	99	99	MI	MI	124
% 4CLTOL Recovery (PID)		16.21	98	94	97	99	98	100	101	101
% C13DCPE Recovery (FID)		8.54	102	100	100	101	101	MI	MI	101
% 4CLTOL Recovery (FID)		15.44	106	101	102	105	104	112	115	105

Unit of Concentration is ug/L

NA -- Not Applicable, or Not Available



**INTERPHASE**  
ENVIRONMENTAL, INC.

**Table IA. Analytical Result of Samples**

Lab ID: Phase 17 GC-1

Operator: Daniel Alvarez

Sample ID :	SV-12-18'	SV-13-18'	SV-14-18'	SB010305	AA010305	SV-15-5'	SV-1-5'	SV-17-5'	SV-17-40'	SV-7-5'	SV-8-5'
Date Collected :	3/4/01	3/4/01	3/4/01	3/5/01	3/5/01	3/5/01	3/5/01	3/5/01	3/5/01	3/5/01	3/5/01
Time Collected :	14:34	15:38	17:42	6:54	7:45	7:50	10:21	11:46	13:48	14:42	15:15
Date Analyzed :	3/4/01	3/4/01	3/4/01	3/5/01	3/5/01	3/5/01	3/5/01	3/5/01	3/5/01	3/5/01	3/5/01
Time Analyzed :	14:40	15:44	17:48	6:54	7:50	8:07	10:27	11:52	14:01	14:50	15:20
Volume Analyzed (ml) :	1	1	1	1	1	1	1	1	1	1	1
Compound Name	Detector	RT (min)									
Dichlorodifluoromethane	ELCD	1.83	<1	<1	<1	<1	<1	<1	<1	<1	<1
Vinyl Chloride	ELCD	2.33	<1	<1	<1	<1	<1	<1	<1	1.3	<1
Chloroethane	ELCD	3.00	4.0	6.7	<1	<1	<1	<1	<1	24	<1
Trichlorodifluoromethane	ELCD	3.38	<1	<1	<1	<1	<1	<1	<1	1.5	<1
Dichloromethane	ELCD	4.62	<1	<1	<1	<1	<1	<1	<1	17	<1
trans-1,2-Dichloroethene	ELCD	4.97	8.7	25	<1	<1	<1	1.7	<1	23	<1
1,1-Dichloroethane	ELCD	5.48	150	108	130	<1	<1	2.1	2.9	1.5	290
cis-1,2-Dichloroethene	ELCD	6.23	21	14	6.5	<1	<1	73	<1	23	<1
Chloroform	ELCD	6.66	12	2.9	8.6	<1	<1	<1	<1	26	<1
1,1,1-Trichloroethane	ELCD	6.90	60	6.9	28	<1	<1	<1	3.1	<1	210
Carbon Tetrachloride	ELCD	7.15	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloroethane	ELCD	7.44	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trichloroethene	ELCD	8.43	200	106	129	<1	<1	5.4	3.7	4.7	180
1,1,2-Trichloroethane	ELCD	11.40	<1	<1	<1	<1	<1	<1	<1	<1	<1
Tetrachloroethene	ELCD	11.69	3.5	1.4	3.8	<1	<1	<1	<1	2.1	<1
1,1,1,2-Tetrachloroethane	ELCD	13.65	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	ELCD	15.87	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethene	PID	3.99	170	110	120	<1	<1	3.9	<1	1.8	300
Benzene	PID	7.39	<1	6.8	<1	<1	<1	<1	<1	<1	<1
Toluene	PID	10.59	<1	<1	<1	<1	<1	<1	<1	<1	<1
Ethyl Benzene	PID	13.70	1.1	2.4	<1	<1	<1	<1	<1	1.6	<1
m/p-Xylene	PID	13.98	2.3	6.5	<1	<1	<1	<1	<1	4.1	<1
o-Xylene	PID	14.76	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2-Trichlorotrifluoroethane	FID	3.98	67	100	<1	<1	<1	<1	<1	190	<1
% C13DCPE Recovery (ELCD)		10.02	92	93	90	110	88	90	95	94	100
% C13DCPE Recovery (PID)		9.98	108	116	99	105	100	99	94	94	116
% 4CLTOL Recovery (PID)		16.21	97	97	96	109	102	101	94	95	93
% C13DCPE Recovery (FID)		8.54	103	MI	101	109	104	103	101	102	MI
% 4CLTOL Recovery (FID)		15.44	105	110	99	115	108	107	101	103	104

Unit of Concentration is ug/L

NA - Not Applicable, or Not Available



**INTERPHASE**  
ENVIRONMENTAL, INC.

### Table IA. Analytical Result of Samples

Lab ID: Phase 17 GC-1

Operator: Daniel Alvarez

Sample ID :		SV-8-5'/DUP	Field Blank 3	SV-2-5'	SV-3-5'
Date Collected :		3/5/01	3/5/01	3/5/01	3/5/01
Time Collected :		15:15	16:32	17:07	18:40
Date Analyzed :		3/5/01	3/5/01	3/5/01	3/5/01
Time Analyzed :		15:25	16:38	17:12	18:45
Volume Analyzed (ml) :		1	1	1	1
Compound Name	Detector	RT (min)			
Dichlorodifluoromethane	ELCD	1.83	<1	<1	<1
Vinyl Chloride	ELCD	2.33	<1	<1	<1
Chloroethane	ELCD	3.00	<1	<1	<1
Trichlorofluoromethane	ELCD	3.38	<1	<1	<1
Dichloromethane	ELCD	4.62	<1	<1	<1
trans-1,2-Dichloroethene	ELCD	4.97	1.1	<1	<1
1,1-Dichloroethane	ELCD	5.48	<1	<1	<1
cis-1,2-Dichloroethene	ELCD	6.23	6.1	<1	<1
Chloroform	ELCD	6.66	<1	<1	<1
1,1,1-Trichloroethane	ELCD	6.90	<1	<1	<1
Carbon Tetrachloride	ELCD	7.15	<1	<1	<1
1,2-Dichloroethane	ELCD	7.44	<1	<1	<1
Trichloroethene	ELCD	8.43	56	<1	3.0
1,1,2-Trichloroethane	ELCD	11.40	<1	<1	<1
Tetrachloroethene	ELCD	11.69	<1	<1	<1
1,1,1,2-Tetrachloroethane	ELCD	13.65	<1	<1	<1
1,1,2,2-Tetrachloroethane	ELCD	15.87	<1	<1	<1
1,1-Dichloroethene	PID	3.99	1.0	<1	<1
Benzene	PID	7.39	<1	<1	<1
Toluene	PID	10.59	<1	<1	<1
Ethyl Benzene	PID	13.70	<1	<1	<1
m/p-Xylene	PID	13.98	<1	<1	<1
o-Xylene	PID	14.76	<1	<1	<1
1,1,2-Trichlorotrifluoroethane	FID	3.98	<1	<1	<1
% C13DCPE Recovery (ELCD)		10.02	93	95	93
% C13DCPE Recovery (PID)		9.98	94	93	93
% 4CLTOL Recovery (PID)		16.21	98	94	97
% C13DCPE Recovery (FID)		8.54	102	101	102
% 4CLTOL Recovery (FID)		15.44	106	103	105

*Unit of Concentration is ug/L*

*NA -- Not Applicable, or Not Available*



## Table IB. Analytical Result of Samples

Lab ID: Phase 17 GC-II

Operator: Daniel Alvarez

**INTERPHASE**  
ENVIRONMENTAL, INC.

Sample ID :	SB010303	SV-9-18'	SV-9-18'/DUP	FIELD BLANK	SB010304	SV-19-5'	SV-19-18'	AA010304	SV-20-18'
Date Collected :	03/03/01	03/03/01	03/03/01	03/03/01	03/04/01	03/04/01	03/04/01	03/04/01	03/04/01
Time Collected :	6:30	17:17	17:17	18:05	6:55	7:27	7:40	8:37	9:10
Date Analyzed :	03/03/01	03/03/01	03/03/01	03/03/01	03/04/01	03/04/01	03/04/01	03/04/01	03/04/01
Time Analyzed :	6:32	17:25	17:45	18:07	6:56	7:38	8:01	8:38	9:15
Volume Analyzed (ml) :	1	1	1	1	1	1	1	1	1
Compound Name	Detector	RT (min)							
Dichlorodifluoromethane	ELCD	1.42	<1	<1	<1	<1	<1	<1	<1
Vinyl Chloride	ELCD	1.83	<1	<1	<1	<1	<1	<1	<1
Chloroethane	ELCD	2.40	<1	<1	<1	<1	<1	6.1	<1
Trichlorofluoromethane	ELCD	2.72	<1	<1	<1	<1	<1	<1	1.7
Dichloromethane	ELCD	3.85	<1	<1	<1	<1	<1	3.3	<1
trans-1,2-Dichloroethene	ELCD	4.13	<1	<1	<1	<1	<1	22	<1
1,1-Dichloroethane	ELCD	4.57	<1	92	92	<1	<1	240	<1
cis-1,2-Dichloroethene	ELCD	5.23	<1	5.8	5.7	<1	<1	31	<1
Chloroform	ELCD	5.62	<1	3.7	3.8	<1	<1	3.1	<1
1,1,1-Trichloroethane	ELCD	5.78	<1	20	19	<1	<1	7.1	<1
Carbon Tetrachloride	ELCD	5.98	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloroethane	ELCD	6.32	<1	<1	<1	<1	<1	<1	<1
Trichloroethene	ELCD	7.15	<1	230	210	<1	<1	120	<1
1,1,2-Trichloroethane	ELCD	9.98	<1	<1	<1	<1	<1	<1	<1
Tetrachloroethene	ELCD	10.15	<1	2.5	3.1	<1	<1	1.2	<1
1,1,1,2-Tetrachloroethane	ELCD	12.07	<1	<1	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	ELCD	14.82	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethene	PID	3.28	<1	63	60	<1	<1	170	<1
Benzene	PID	6.24	<1	<1	<1	<1	<1	5.6	<1
Toluene	PID	9.17	<1	<1	<1	<1	<1	4.1	<1
Ethyl Benzene	PID	12.13	<1	<1	<1	<1	<1	2.5	<1
m/p-Xylene	PID	12.39	<1	<1	<1	<1	<1	2.1	<1
o-Xylene	PID	13.23	<1	<1	<1	<1	<1	<1	<1
1,1,2-Trichlorotrifluoroethane	FID	4.10	<1	<1	<1	<1	<1	280	<1
% C13DCPE Recovery (ELCD)		8.66	125	115	121	104	110	104	122
% C13DCPE Recovery (PID)		8.64	96	96	99	97	96	98	MI
% 4CLTOL Recovery (PID)		15.19	99	97	103	104	96	102	110
% C13DCPE Recovery (FID)		8.69	100	100	102	102	100	102	MI
% 4CLTOL Recovery (FID)		15.54	103	104	108	109	103	109	MI
<i>Unit of Concentration is ug/L</i>									

*NA -- Not Applicable, or Not Available*



**INTERPHASE**  
ENVIRONMENTAL, INC

Table IB. Analytical Result of Samples

Lab ID: Phase 17 GC-II

Operator: Daniel Alvarez

Sample ID :		SV-20-18'DUP	SV-18-5'	FIELDBLANK2	SV-12-5'	SV-13-5'	SV-14-5'	SB010305	SV-15-18'
Date Collected :		03/04/01	03/04/01	03/04/01	03/04/01	03/04/01	03/04/01	03/05/01	03/05/01
Time Collected :		9:10	9:58	11:25	14:20	15:20	16:29	6:58	8:05
Date Analyzed :		03/04/01	03/04/01	03/04/01	03/04/01	03/04/01	03/04/01	03/05/01	03/05/01
Time Analyzed :		9:35	10:04	11:30	14:25	15:25	16:34	6:58	8:28
Volume Analyzed (ml) :		1	1	1	1	1	1	1	1
Compound Name	Detector	RT (min)							
Dichlorodifluoromethane	ELCD	1.42	<1	<1	<1	<1	<1	<1	<1
Vinyl Chloride	ELCD	1.83	<1	<1	<1	<1	<1	<1	<1
Chloroethane	ELCD	2.40	27	<1	<1	<1	<1	<1	2.4
Trichlorofluoromethane	ELCD	2.72	1.8	<1	<1	<1	<1	<1	<1
Dichloromethane	ELCD	3.85	2.4	<1	<1	<1	<1	<1	2.3
trans-1,2-Dichloroethene	ELCD	4.13	31	<1	<1	<1	<1	<1	4.8
1,1-Dichloroethane	ELCD	4.57	320	<1	<1	<1	3.6	2.1	<1
cis-1,2-Dichloroethene	ELCD	5.23	36	<1	<1	<1	<1	<1	73
Chloroform	ELCD	5.62	<1	<1	<1	<1	<1	<1	19
1,1,1-Trichloroethane	ELCD	5.78	<1	<1	<1	<1	<1	2.0	<1
Carbon Tetrachloride	ELCD	5.98	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloroethane	ELCD	6.32	<1	<1	<1	<1	<1	<1	<1
Trichloroethene	ELCD	7.15	110	1.3	<1	<1	3.8	9.9	<1
1,1,2-Trichloroethane	ELCD	9.98	<1	<1	<1	<1	<1	<1	<1
Tetrachloroethene	ELCD	10.15	<1	<1	<1	<1	<1	<1	3.8
1,1,1,2-Tetrachloroethane	ELCD	12.07	<1	<1	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	ELCD	14.82	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethene	PID	3.28	230	<1	<1	<1	3.5	<1	<1
Benzene	PID	6.24	12	<1	<1	<1	1.3	<1	<1
Toluene	PID	9.17	7	<1	<1	<1	<1	<1	1.8
Ethyl Benzene	PID	12.13	<1	<1	<1	<1	<1	<1	<1
m/p-Xylene	PID	12.39	3.1	<1	<1	<1	<1	<1	<1
o-Xylene	PID	13.23	<1	<1	<1	<1	<1	<1	<1
1,1,2-Trichlorotrifluoroethane	FID	4.10	450	<1	<1	<1	18	<1	<1
% C13DCPE Recovery (ELCD)		8.66	123	124	111	116	116	113	131
% C13DCPE Recovery (PID)		8.64	MI	97	96	95	95	94	95
% 4CLTOL Recovery (PID)		15.19	105	102	99	98	98	97	108
% C13DCPE Recovery (FID)		8.69	MI	101	101	101	102	101	102
% 4CLTOL Recovery (FID)		15.54	MI	109	107	106	106	107	115

*Unit of Concentration is ug/L**NA -- Not Applicable, or Not Available*



## Table IB. Analytical Result of Samples

Lab ID: Phase 17 GC-II

Operator: Daniel Alvarez

### INTERPHASE ENVIRONMENTAL, INC

Sample ID :		SV-15-18'/DUP	SV-1-18'	SV-17-18'	SV-17-28'	SV-17-40'	SV-8-18'	SV-7-18'	SV-2-18'
Date Collected :	03/05/01	03/05/01	03/05/01	03/05/01	03/05/01	03/05/01	03/05/01	03/05/01	03/05/01
Time Collected :	8:05	10:35	11:58	13:13	13:48	15:31	16:04	17:26	
Date Analyzed :	03/05/01	03/05/01	03/05/01	03/05/01	03/05/01	03/05/01	03/05/01	03/05/01	03/05/01
Time Analyzed :	8:50	10:41	12:04	13:22	13:56	15:37	16:10	17:37	
Volume Analyzed (ml) :	1	1	1	1	1	1	1	1	1
Compound Name	Detector	RT (min)							
Dichlorodifluoromethane	ELCD	1.42	<1	<1	<1	NA	<1	<1	<1
Vinyl Chloride	ELCD	1.83	<1	<1	<1	NA	<1	<1	<1
Chloroethane	ELCD	2.40	2.4	<1	22	NA	24	<1	<1
Trichlorofluoromethane	ELCD	2.72	<1	<1	1.2	NA	1.0	<1	<1
Dichloromethane	ELCD	3.85	2.1	<1	21	NA	18	<1	<1
trans-1,2-Dichloroethene	ELCD	4.13	4.5	<1	27	NA	21	<1	<1
1,1-Dichloroethane	ELCD	4.57	180	89	330	NA	270	99	150
cis-1,2-Dichloroethene	ELCD	5.23	63	4.5	30	NA	22	23	15
Chloroform	ELCD	5.62	16	4.9	30	NA	25	6.2	11
1,1,1-Trichloroethane	ELCD	5.78	98	26	310	NA	210	31	61
Carbon Tetrachloride	ELCD	5.98	<1	<1	<1	NA	<1	<1	<1
1,2-Dichloroethane	ELCD	6.32	<1	<1	2.7	NA	<1	<1	<1
Trichloroethylene	ELCD	7.15	170	120	350	NA	220	310	280
1,1,2-Trichloroethane	ELCD	9.98	<1	<1	<1	NA	<1	<1	<1
Tetrachloroethylene	ELCD	10.15	3.4	2.2	11	NA	5.0	2.0	5.3
1,1,1,2-Tetrachloroethane	ELCD	12.07	<1	<1	<1	NA	<1	<1	<1
1,1,2,2-Tetrachloroethane	ELCD	14.82	<1	<1	<1	NA	<1	<1	<1
1,1-Dichloroethene	PID	3.28	180	48	330	NA	260	<1	98
Benzene	PID	6.24	1.8	<1	7.3	NA	<1	<1	<1
Toluene	PID	9.17	1.7	<1	11	NA	<1	<1	<1
Ethyl Benzene	PID	12.13	<1	<1	<1	NA	3.6	<1	<1
m/p-Xylene	PID	12.39	<1	<1	3.6	NA	7.6	<1	<1
o-Xylene	PID	13.23	<1	<1	<1	NA	1.8	<1	<1
1,1,2-Trichlorotrifluoroethane	FID	4.10	<1	<1	190	NA	200	<1	<1
% C13DCPE Recovery (ELCD)		8.66	102	116	107	107	107	108	122
% C13DCPE Recovery (PID)		8.64	105	94	MI	92	113	95	97
% 4CLTOL Recovery (PID)		15.19	100	98	106	104	97	102	101
% C13DCPE Recovery (FID)		8.69	103	101	109	103	MI	102	103
% 4CLTOL Recovery (FID)		15.54	109	107	MI	109	104	110	114

*Unit of Concentration is ug/L*

*NA -- Not Applicable, or Not Available*



**INTERPHASE**  
ENVIRONMENTAL INC

### Table IB. Analytical Result of Samples

Lab ID: Phase 17 GC-II

Operator: Daniel Alvarez

Sample ID :		SV-2-26'	SV-2-26'/DUP	SV-3-18'
Date Collected :		03/05/01	03/05/01	03/05/01
Time Collected :		18:09	18:09	18:52
Date Analyzed :		03/05/01	03/05/01	03/05/01
Time Analyzed :		18:20	18:41	19:02
Volume Analyzed (ml) :		1	1	1
Compound Name	Detector	RT (min)		
Dichlorodifluoromethane	ELCD	1.42	<1	<1
Vinyl Chloride	ELCD	1.83	<1	<1
Chloroethane	ELCD	2.40	<1	<1
Trichlorofluoromethane	ELCD	2.72	<1	<1
Dichloromethane	ELCD	3.85	<1	<1
trans-1,2-Dichloroethene	ELCD	4.13	<1	<1
1,1-Dichloroethane	ELCD	4.57	89	83
cis-1,2-Dichloroethene	ELCD	5.23	7.0	6.7
Chloroform	ELCD	5.62	4.9	4.6
1,1,1-Trichloroethane	ELCD	5.78	30	29
Carbon Tetrachloride	ELCD	5.98	<1	<1
1,2-Dichloroethane	ELCD	6.32	<1	<1
Trichloroethene	ELCD	7.15	110	97
1,1,2-Trichloroethane	ELCD	9.98	<1	<1
Tetrachloroethene	ELCD	10.15	<1	<1
1,1,1,2-Tetrachloroethane	ELCD	12.07	<1	<1
1,1,2,2-Tetrachloroethane	ELCD	14.82	<1	<1
1,1-Dichloroethene	PID	3.28	59	55
Benzene	PID	6.24	<1	<1
Toluene	PID	9.17	<1	<1
Ethyl Benzene	PID	12.13	<1	<1
m/p-Xylene	PID	12.39	<1	<1
o-Xylene	PID	13.23	<1	<1
1,1,2-Trichlorotrifluoroethane	FID	4.10	<1	<1
% C13DCPE Recovery (ELCD)		8.66	108	112
% C13DCPE Recovery (PID)		8.64	96	98
% 4CLTOL Recovery (PID)		15.19	104	108
% C13DCPE Recovery (FID)		8.69	102	103
% 4CLTOL Recovery (FID)		15.54	112	115
<i>Unit of Concentration is ug/L</i>				
<i>NA -- Not Applicable, or Not Available</i>				



**INTERPHASE**  
ENVIRONMENTAL, INC.

**Table II A. Initial Calibration Results**

Lab ID: Phase 17 GC-I

Date Calibrated: January 17, 2001

Analyst: David Feng

Standard: CAL9904

Date Standard Prepared: August 25, 1999

Concentration Level:

Amount of Standard Injected (mL):

<i>Compound Name</i>	<i>Detector</i>	<i>RT (min)</i>	<i>Stnd Conc. (<math>\mu\text{g/L}</math>)</i>	LEVEL 1 0.014		LEVEL 2 0.062		LEVEL 3 0.2	
				Mass(ng)	Area	RF	Mass(ng)	Area	RF
Dichlorodifluoromethane	ELCD	1.83	350	4.90	10869	4.51E-04	21.7	57663	3.76E-04
Vinyl Chloride	ELCD	2.33	348	4.87	16479	2.96E-04	21.6	74451	2.90E-04
Chloroethane	ELCD	3.00	359	5.03	9167	5.48E-04	22.3	45729	4.87E-04
Trichlorodifluoromethane	ELCD	3.38	357	5.00	24795	2.02E-04	22.1	111987	1.98E-04
Dichloromethane	ELCD	4.62	351	4.91	17920	2.74E-04	21.8	78222	2.78E-04
trans-1,2-Dichloroethene	ELCD	4.97	359	5.03	18069	2.78E-04	22.3	79940	2.78E-04
1,1-Dichloroethane	ELCD	5.48	327	4.58	15134	3.02E-04	20.3	81707	2.48E-04
cis-1,2-Dichloroethene	ELCD	6.23	352	4.93	15724	3.13E-04	21.8	81343	2.68E-04
Chloroform	ELCD	6.66	350	4.90	21363	2.29E-04	21.7	108548	2.00E-04
1,1,1-Trichloroethane	ELCD	6.90	353	4.94	20826	2.37E-04	21.9	114670	1.91E-04
Carbon Tetrachloride	ELCD	7.15	348	4.87	24074	2.02E-04	21.6	128790	1.68E-04
1,2-Dichloroethane	ELCD	7.44	350	4.90	13168	3.72E-04	21.7	70981	3.06E-04
Trichloroethylene	ELCD	8.43	345	4.83	23021	2.10E-04	21.4	91155	2.35E-04
1,1,2-Trichloroethane	ELCD	11.40	350	4.90	19148	2.56E-04	21.7	92042	2.36E-04
Tetrachloroethylene	ELCD	11.69	348	4.87	21120	2.31E-04	21.6	97607	2.21E-04
1,1,1,2-Tetrachloroethane	ELCD	13.65	351	4.91	22668	2.17E-04	21.8	107974	2.02E-04
1,1,2,2-Tetrachloroethane	ELCD	15.87	354	4.96	22578	2.20E-04	21.9	97191	2.26E-04
1,1-Dichloroethene	PID	3.99	350	4.90	6617	7.41E-04	21.7	36374	5.97E-04
Benzene	PID	7.39	359	5.03	17122	2.94E-04	22.3	89603	2.48E-04
Toluene	PID	10.59	349	4.89	14277	3.42E-04	21.6	72385	2.99E-04
Ethyl Benzene	PID	13.70	350	4.90	12942	3.79E-04	21.7	62082	3.50E-04
m/p-Xylene	PID	13.98	693	9.70	34558	2.81E-04	43.0	150395	2.86E-04
o-Xylene	PID	14.76	345	4.83	13225	3.65E-04	21.4	59495	3.60E-04
1,1,2-Trichlorotrifluoroethane	FID	3.98	350	4.90	1480	3.31E-03	21.7	6855	3.17E-03

**Table IIA. Initial Calibration Results**

Lab ID: Phase 17 GC-I



**INTERPHASE**  
ENVIRONMENTAL, INC.

Date Calibrated: January 17, 2001

Analyst: David Feng

Standard: CAL9904

Date Standard Prepared: August 25, 1999

Concentration Level:

Amount of Standard Injected (mL):

LEVEL 5

0.95

<i>Compound Name</i>	<i>Detector</i>	<i>RT (min)</i>	<i>Stnd Conc.</i> ( $\mu\text{g/L}$ )	<i>Mass(ng)</i>	<i>Area</i>	<i>RF</i>	<i>Aver. RF</i>	<i>Std. Div.</i>	<i>%RSD</i>	<i>Acpt. Rng.</i>
Dichlorodifluoromethane	ELCD	1.83	350	333	703585	4.73E-04	4.12E-04	5.31E-05	12.9	<30
Vinyl Chloride	ELCD	2.33	348	331	1021488	3.24E-04	2.95E-04	2.14E-05	7.3	<30
Chloroethane	ELCD	3.00	359	341	600048	5.68E-04	5.24E-04	4.07E-05	7.8	<30
Trichlorodifluoromethane	ELCD	3.38	357	339	1424187	2.38E-04	2.08E-04	2.06E-05	9.9	<30
Dichloromethane	ELCD	4.62	351	333	1047735	3.18E-04	2.83E-04	2.49E-05	8.8	<20
trans-1,2-Dichloroethene	ELCD	4.97	359	341	1230327	2.77E-04	2.66E-04	2.34E-05	8.8	<20
1,1-Dichloroethane	ELCD	5.48	327	311	1178343	2.64E-04	2.60E-04	3.25E-05	12.5	<20
cis-1,2-Dichloroethene	ELCD	6.23	352	334	1167476	2.86E-04	2.77E-04	3.07E-05	11.1	<20
Chloroform	ELCD	6.66	350	333	1503751	2.21E-04	2.08E-04	2.09E-05	10.0	<20
1,1,1-Trichloroethane	ELCD	6.90	353	335	1485735	2.26E-04	2.09E-04	2.62E-05	12.5	<20
Carbon Tetrachloride	ELCD	7.15	348	331	1681325	1.97E-04	1.81E-04	2.14E-05	11.8	<20
1,2-Dichloroethane	ELCD	7.44	350	333	1146386	2.90E-04	3.10E-04	4.36E-05	14.1	<20
Trichloroethene	ELCD	8.43	345	328	1335215	2.45E-04	2.25E-04	1.81E-05	8.0	<20
1,1,2-Trichloroethane	ELCD	11.40	350	333	1379526	2.41E-04	2.37E-04	1.73E-05	7.3	<20
Tetrachloroethene	ELCD	11.69	348	331	1491132	2.22E-04	2.19E-04	1.23E-05	5.6	<20
1,1,1,2-Tetrachloroethane	ELCD	13.65	351	333	1525514	2.19E-04	2.07E-04	1.35E-05	6.5	<20
1,1,2,2-Tetrachloroethane	ELCD	15.87	354	336	1307534	2.57E-04	2.33E-04	1.68E-05	7.2	<20
1,1-Dichloroethene	PID	3.99	350	333	690046	4.82E-04	5.90E-04	1.11E-04	18.8	<20
Benzene	PID	7.39	359	341	1623943	2.10E-04	2.44E-04	3.65E-05	14.9	<20
Toluene	PID	10.59	349	332	1448851	2.29E-04	2.83E-04	4.90E-05	17.3	<20
Ethyl Benzene	PID	13.70	350	333	1218221	2.73E-04	3.28E-04	4.61E-05	14.1	<20
m/p-Xylene	PID	13.98	693	658	2871822	2.29E-04	2.63E-04	2.58E-05	9.8	<20
o-Xylene	PID	14.76	345	328	1192789	2.75E-04	3.30E-04	4.18E-05	12.7	<20
1,1,2-Trichlorotrifluoroethane	FID	3.98	350	333	102550	3.24E-03	3.24E-03	5.95E-05	1.8	<30

**Table IIB. Initial Calibration Results**

Lab ID: Phase 17 GC-I



**INTERPHASE**  
ENVIRONMENTAL, INC.

Date Calibrated: March 01, 2001

Analyst: Daniel Alvarez

Standard: CAL9906

Date Standard Prepared: Sept. 28, 1999

Concentration Level:

Amount of Standard Injected (mL):

Compound Name	Detector	RT (min)	Stnd Conc. (ug/L)	LEVEL 1 0.01			LEVEL 2 0.04			LEVEL 3 0.2		
				Mass(ng)	Area	RF	Mass(ng)	Area	RF	Mass(ng)	Area	RF
Dichlorodifluoromethane	ELCD	1.46	490	4.90	13130	3.73E-04	19.6	56437	3.47E-04	98.0	309503	3.17E-04
Vinyl Chloride	ELCD	1.87	492	4.92	16686	2.95E-04	19.7	80196	2.45E-04	98.4	409127	2.41E-04
Chloroethane	ELCD	2.43	508	5.08	14227	3.57E-04	20.3	61556	3.30E-04	101.6	315190	3.22E-04
Trichlorofluoromethane	ELCD	2.75	505	5.05	32005	1.58E-04	20.2	127610	1.58E-04	101.0	621477	1.63E-04
Dichloromethane	ELCD	3.89	497	4.97	29809	1.67E-04	19.9	110307	1.80E-04	99.4	523851	1.90E-04
trans-1,2-Dichloroethene	ELCD	4.18	508	5.08	29996	1.69E-04	20.3	114870	1.77E-04	101.6	548546	1.85E-04
1,1-Dichloroethane	ELCD	4.63	463	4.63	21982	2.11E-04	18.5	100461	1.84E-04	92.6	495878	1.87E-04
cis-1,2-Dichloroethene	ELCD	5.29	498	4.98	25415	1.96E-04	19.9	104150	1.91E-04	99.6	497402	2.00E-04
Chloroform	ELCD	5.69	495	4.95	32110	1.54E-04	19.8	128041	1.55E-04	99.0	603427	1.64E-04
1,1,1-Trichloroethane	ELCD	5.86	500	5.00	34560	1.45E-04	20.0	137455	1.46E-04	100.0	629458	1.59E-04
Carbon Tetrachloride	ELCD	6.06	493	4.93	45582	1.08E-04	19.7	159889	1.23E-04	98.6	715260	1.38E-04
1,2-Dichloroethane	ELCD	6.39	496	4.96	31427	1.58E-04	19.8	109222	1.82E-04	99.2	546736	1.81E-04
Trichloroethene	ELCD	7.25	489	4.89	34514	1.42E-04	19.6	120128	1.63E-04	97.8	583300	1.68E-04
1,1,2-Trichloroethane	ELCD	10.12	495	4.95	33014	1.50E-04	19.8	104956	1.89E-04	99.0	536452	1.85E-04
Tetrachloroethene	ELCD	10.28	493	4.93	36991	1.33E-04	19.7	154202	1.28E-04	98.6	681565	1.45E-04
1,1,1,2-Tetrachloroethane	ELCD	12.24	497	4.97	37511	1.32E-04	19.9	132045	1.51E-04	99.4	651376	1.53E-04
1,1,2,2-Tetrachloroethane	ELCD	14.98	501	5.01	31015	1.62E-04	20.0	125148	1.60E-04	100.2	742215	1.35E-04
1,1-Dichloroethene	PID	3.29	495	4.95	5851	8.46E-04	19.8	26850	7.37E-04	99.0	133980	7.39E-04
Benzene	PID	6.28	508	5.08	15290	3.32E-04	20.3	66050	3.08E-04	101.6	333283	3.05E-04
Toluene	PID	9.26	494	4.94	15812	3.12E-04	19.8	54785	3.61E-04	98.8	285938	3.46E-04
Ethyl Benzene	PID	12.26	495	4.95	14790	3.35E-04	19.8	47589	4.16E-04	99.0	252264	3.92E-04
m/p-Xylene	PID	12.53	981	9.81	41707	2.35E-04	39.2	119192	3.29E-04	196.2	638926	3.07E-04
o-Xylene	PID	13.38	489	4.89	15430	3.17E-04	19.6	44446	4.40E-04	97.8	247732	3.95E-04
1,1,2-Trichlorotrifluoroethane	FID	4.15	495	4.95	1028	4.82E-03	19.8	4460	4.44E-03	99.0	17713	5.59E-03

**Table IIB. Initial Calibration Results**

Lab ID: Phase 17 GC-I

**INTERPHASE**  
ENVIRONMENTAL, INC

Date Calibrated: March 01, 2001

Analyst: Daniel Alvarez

Standard: CAL9906

Date Standard Prepared: Sept. 28, 1999

Concentration Level:

Amount of Standard Injected (mL):

LEVEL 4  
1

Compound Name	Detector	RT (min)	Stnd Conc. (ug/L)	Mass(ng)	Area	RF	Aver. RF	Std. Div.	%RSD	Acpt. Rng.
Dichlorodifluoromethane	ELCD	1.46	490	490	1488244	3.29E-04	3.42E-04	2.45E-05	7.2	<30
Vinyl Chloride	ELCD	1.87	492	492	1875653	2.62E-04	2.61E-04	2.46E-05	9.4	<30
Chloroethane	ELCD	2.43	508	508	1474250	3.45E-04	3.39E-04	1.54E-05	4.6	<30
Trichlorodifluoromethane	ELCD	2.75	505	505	2759918	1.83E-04	1.65E-04	1.19E-05	7.2	<30
Dichloromethane	ELCD	3.89	497	497	2381271	2.09E-04	1.86E-04	1.76E-05	9.5	<20
trans-1,2-Dichloroethene	ELCD	4.18	508	508	2416741	2.10E-04	1.85E-04	1.77E-05	9.6	<20
1,1-Dichloroethane	ELCD	4.63	463	463	2286639	2.02E-04	1.96E-04	1.26E-05	6.4	<20
cis-1,2-Dichloroethene	ELCD	5.29	498	498	2278635	2.19E-04	2.02E-04	1.19E-05	5.9	<20
Chloroform	ELCD	5.69	495	495	2708888	1.83E-04	1.64E-04	1.34E-05	8.2	<20
1,1,1-Trichloroethane	ELCD	5.86	500	500	2688429	1.86E-04	1.59E-04	1.93E-05	12.1	<20
Carbon Tetrachloride	ELCD	6.06	493	493	3187554	1.55E-04	1.31E-04	1.99E-05	15.2	<20
1,2-Dichloroethane	ELCD	6.39	496	496	2460789	2.02E-04	1.81E-04	1.79E-05	9.9	<20
Trichloroethene	ELCD	7.25	489	489	2614464	1.87E-04	1.65E-04	1.86E-05	11.3	<20
1,1,2-Trichloroethane	ELCD	10.12	495	495	2241417	2.21E-04	1.86E-04	2.90E-05	15.6	<20
Tetrachloroethene	ELCD	10.28	493	493	2795184	1.76E-04	1.46E-04	2.17E-05	14.9	<20
1,1,1,2-Tetrachloroethane	ELCD	12.24	497	497	2685316	1.85E-04	1.55E-04	2.19E-05	14.1	<20
1,1,2,2-Tetrachloroethane	ELCD	14.98	501	501	2694042	1.86E-04	1.61E-04	2.08E-05	13.0	<20
1,1-Dichloroethene	PID	3.29	495	495	756627	6.54E-04	7.44E-04	7.86E-05	10.6	<20
Benzene	PID	6.28	508	508	1730534	2.94E-04	3.10E-04	1.63E-05	5.3	<20
Toluene	PID	9.26	494	494	1551571	3.18E-04	3.34E-04	2.28E-05	6.8	<20
Ethyl Benzene	PID	12.26	495	495	1331262	3.72E-04	3.79E-04	3.45E-05	9.1	<20
m/p-Xylene	PID	12.53	981	981	3175220	3.09E-04	2.95E-04	4.12E-05	14.0	<20
o-Xylene	PID	13.38	489	489	1313739	3.72E-04	3.81E-04	5.12E-05	13.4	<20
1,1,2-Trichlorotrifluoroethane	FID	4.15	495	495	90822	5.45E-03	5.07E-03	5.41E-04	10.7	<30

**Table IIIA. LCS Check Results**

Lab ID: Phase 17 GC-I


**INTERPHASE**  
 ENVIRONMENTAL, INC.

Date Calibrated: January 17, 2001

Calibration Standard: CAL9904

LCS Standard: CAL9903

Date Standard Prepared: August 25, 1999

Analyst: David Feng

Date LCS Checked:

17-Jan-01

3-Mar-01

Time LCS Checked:

16:36

18:41

Volume of LCS Injected (mL):

0.2

0.2

Compound Name	Detector	RT (min)	Stnd Conc. (ug/L)	Area	RF	Cal. Avr.	RF % Dev.	Acpt. Rng.	Area	RF	Cal. Avr.	RF % Dev.	Acpt. Rng.
Dichlorodifluoromethane	ELCD	1.83	351	152481	4.60E-04	4.12E-04	11.9	±25	131732	5.33E-04	4.12E-04	29.5	±25
Vinyl Chloride	ELCD	2.33	349	243841	2.86E-04	2.95E-04	-3.1	±25	221157	3.16E-04	2.95E-04	6.9	±25
Chloroethane	ELCD	3.00	361	132288	5.46E-04	5.24E-04	4.2	±25	143202	5.04E-04	5.24E-04	-3.8	±25
Trichlorofluoromethane	ELCD	3.38	382	341508	2.24E-04	2.08E-04	7.7	±25	329385	2.32E-04	2.08E-04	11.7	±25
Dichloromethane	ELCD	4.62	354	256945	2.76E-04	2.83E-04	-2.5	±15	238548	2.97E-04	2.83E-04	5.0	±15
trans-1,2-Dichloroethene	ELCD	4.97	352	308816	2.28E-04	2.66E-04	-14.4	±15	277931	2.53E-04	2.66E-04	-4.9	±15
1,1-Dichloroethane	ELCD	5.48	293	247724	2.37E-04	2.60E-04	-9.0	±15	253301	2.31E-04	2.60E-04	-11.0	±15
cis-1,2-Dichloroethene	ELCD	6.23	357	262186	2.72E-04	2.77E-04	-1.7	±15	259348	2.75E-04	2.77E-04	-0.7	±15
Chloroform	ELCD	6.66	352	362921	1.94E-04	2.08E-04	-6.9	±15	345564	2.04E-04	2.08E-04	-2.2	±15
1,1,1-Trichloroethane	ELCD	6.90	349	344767	2.02E-04	2.09E-04	-3.3	±15	337177	2.07E-04	2.09E-04	-1.1	±15
Carbon Tetrachloride	ELCD	7.15	350	403681	1.73E-04	1.81E-04	-4.4	±15	392559	1.78E-04	1.81E-04	-1.7	±15
1,2-Dichloroethane	ELCD	7.44	348	248443	2.80E-04	3.10E-04	-9.6	±15	227275	3.06E-04	3.10E-04	-1.2	±15
Trichloroethene	ELCD	8.43	350	321333	2.18E-04	2.25E-04	-3.1	±15	291991	2.40E-04	2.25E-04	6.6	±15
1,1,2-Trichloroethane	ELCD	11.40	349	330758	2.11E-04	2.37E-04	-10.9	±15	315049	2.22E-04	2.37E-04	-6.4	±15
Tetrachloroethene	ELCD	11.69	369	345647	2.14E-04	2.19E-04	-2.4	±15	309228	2.39E-04	2.19E-04	9.1	±15
1,1,1,2-Tetrachloroethane	ELCD	13.65	355	364715	1.95E-04	2.07E-04	-5.8	±15	359938	1.97E-04	2.07E-04	-4.6	±15
1,1,2,2-Tetrachloroethane	ELCD	15.87	351	313329	2.24E-04	2.33E-04	-3.6	±15	346488	2.03E-04	2.33E-04	-12.9	±15
1,1-Dichloroethene	PID	3.99	362	130915	5.53E-04	5.90E-04	-6.2	±15	129610	5.59E-04	5.90E-04	-5.3	±15
Benzene	PID	7.39	359	333721	2.15E-04	2.44E-04	-11.9	±15	326783	2.20E-04	2.44E-04	-10.0	±15
Toluene	PID	10.59	352	287333	2.45E-04	2.83E-04	-13.3	±15	282134	2.50E-04	2.83E-04	-11.7	±15
Ethyl Benzene	PID	13.70	351	244715	2.87E-04	3.28E-04	-12.5	±15	243224	2.89E-04	3.28E-04	-11.9	±15
m/p-Xylene	PID	13.98	707	595464	2.37E-04	2.63E-04	-9.8	±15	592478	2.39E-04	2.63E-04	-9.4	±15
o-Xylene	PID	14.76	353	236097	2.99E-04	3.30E-04	-9.4	±15	233506	3.02E-04	3.30E-04	-8.4	±15
1,1,2-Trichlorotrifluoroethane	FID	3.98	344	21867	3.15E-03	3.24E-03	-2.8	±25	21897	3.14E-03	3.24E-03	-2.9	±25

**Table IIIA. LCS Check Results**

Lab ID: Phase 17 GC-I


**INTERPHASE**  
**ENVIRONMENTAL, INC.**

Date Calibrated: January 17, 2001

Calibration Standard: CAL9904

LCS Standard: CAL9903

Date Standard Prepared: August 25, 1999

Analyst: David Feng

Date LCS Checked:

4-Mar-01

5-Mar-01

18:41

19:21

Time LCS Checked:

0.2

0.2

Volume of LCS Injected (mL):

Compound Name	Detector	RT (min)	Stnd Conc. (ug/L)	Area	RF	Cal. Avr.	RF % Dev.	Acpt. Rng.	Area	RF	Cal. Avr.	RF % Dev.	Acpt. Rng.
Dichlorodifluoromethane	ELCD	1.83	351	114891	6.11E-04	4.12E-04	48.5	±25	124404	5.64E-04	4.12E-04	37.1	±25
Vinyl Chloride	ELCD	2.33	349	220792	3.16E-04	2.95E-04	7.1	±25	225230	3.10E-04	2.95E-04	5.0	±25
Chloroethane	ELCD	3.00	361	141383	5.11E-04	5.24E-04	-2.5	±25	144975	4.98E-04	5.24E-04	-4.9	±25
Trichlorofluoromethane	ELCD	3.38	382	342423	2.23E-04	2.08E-04	7.5	±25	349006	2.19E-04	2.08E-04	5.4	±25
Dichloromethane	ELCD	4.62	354	236764	2.99E-04	2.83E-04	5.8	±15	253450	2.79E-04	2.83E-04	-1.2	±15
trans-1,2-Dichloroethene	ELCD	4.97	352	284201	2.48E-04	2.66E-04	-7.0	±15	306850	2.29E-04	2.66E-04	-13.8	±15
1,1-Dichloroethane	ELCD	5.48	293	262881	2.23E-04	2.60E-04	-14.2	±15	256413	2.29E-04	2.60E-04	-12.1	±15
cis-1,2-Dichloroethene	ELCD	6.23	357	263384	2.71E-04	2.77E-04	-2.2	±15	277127	2.58E-04	2.77E-04	-7.0	±15
Chloroform	ELCD	6.66	352	364082	1.93E-04	2.08E-04	-7.2	±15	366484	1.92E-04	2.08E-04	-7.8	±15
1,1,1-Trichloroethane	ELCD	6.90	349	357643	1.95E-04	2.09E-04	-6.8	±15	368365	1.89E-04	2.09E-04	-9.5	±15
Carbon Tetrachloride	ELCD	7.15	350	420363	1.67E-04	1.81E-04	-8.2	±15	441569	1.59E-04	1.81E-04	-12.6	±15
1,2-Dichloroethane	ELCD	7.44	348	238918	2.91E-04	3.10E-04	-6.0	±15	250056	2.78E-04	3.10E-04	-10.2	±15
Trichloroethene	ELCD	8.43	350	294748	2.37E-04	2.25E-04	5.6	±15	304320	2.30E-04	2.25E-04	2.3	±15
1,1,2-Trichloroethane	ELCD	11.40	349	330645	2.11E-04	2.37E-04	-10.8	±15	305330	2.29E-04	2.37E-04	-3.4	±15
Tetrachloroethene	ELCD	11.69	369	321077	2.30E-04	2.19E-04	5.1	±15	301965	2.44E-04	2.19E-04	11.7	±15
1,1,1,2-Tetrachloroethane	ELCD	13.65	355	365936	1.94E-04	2.07E-04	-6.1	±15	348534	2.04E-04	2.07E-04	-1.5	±15
1,1,2,2-Tetrachloroethane	ELCD	15.87	351	346181	2.03E-04	2.33E-04	-12.8	±15	304473	2.31E-04	2.33E-04	-0.8	±15
1,1-Dichloroethene	PID	3.99	362	130018	5.57E-04	5.90E-04	-5.6	±15	124791	5.80E-04	5.90E-04	-1.6	±15
Benzene	PID	7.39	359	331389	2.17E-04	2.44E-04	-11.3	±15	316227	2.27E-04	2.44E-04	-7.0	±15
Toluene	PID	10.59	352	289041	2.44E-04	2.83E-04	-13.8	±15	272908	2.58E-04	2.83E-04	-8.7	±15
Ethyl Benzene	PID	13.70	351	251709	2.79E-04	3.28E-04	-14.9	±15	234872	2.99E-04	3.28E-04	-8.8	±15
m/p-Xylene	PID	13.98	707	620701	2.28E-04	2.63E-04	-13.5	±15	570245	2.48E-04	2.63E-04	-5.8	±15
o-Xylene	PID	14.76	353	246848	2.86E-04	3.30E-04	-13.4	±15	224759	3.14E-04	3.30E-04	-4.8	±15
1,1,2-Trichlorotrifluoroethane	FID	3.98	344	22246	3.09E-03	3.24E-03	-4.5	±25	21889	3.14E-03	3.24E-03	-2.9	±25

**Table IIIB. LCS Check Results**

Lab ID: Phase 17 GC-II


**INTERPHASE**  
 ENVIRONMENTAL, INC.

Date Calibrated: March 01, 2001

Calibration Standard: CAL9906

LCS Standard: CAL9905

Date Standard Prepared: September 28, 1999

Analyst: Daniel Alvarez

Date LCS Checked:

2-Mar-01

3-Mar-01

Time LCS Checked:

12:01

18:50

Amount of LCS Injected (mL):

0.2

0.2

Compound Name	Detector	RT (min)	Stnd Conc. (ug/L)	Area	RF	Cal. Avr. RF	% Dev.	Acpt. Rng.	Area	RF	Cal. Avr. RF	% Dev.	Acpt. Rng.
Dichlorodifluoromethane	ELCD	1.46	489	288819	3.39E-04	3.42E-04	-0.9	±25	324578	3.01E-04	3.42E-04	-11.8	±25
Vinyl Chloride	ELCD	1.87	491	401954	2.44E-04	2.61E-04	-6.3	±25	428988	2.29E-04	2.61E-04	-12.2	±25
Chloroethane	ELCD	2.43	507	313005	3.24E-04	3.39E-04	-4.3	±25	335731	3.02E-04	3.39E-04	-10.8	±25
Trichlorodifluoromethane	ELCD	2.75	537	607106	1.77E-04	1.65E-04	7.0	±25	652201	1.65E-04	1.65E-04	-0.4	±25
Dichloromethane	ELCD	3.89	497	547041	1.82E-04	1.86E-04	-2.5	±15	579841	1.71E-04	1.86E-04	-8.0	±15
trans-1,2-Dichloroethene	ELCD	4.18	496	562533	1.76E-04	1.85E-04	-4.9	±15	586375	1.69E-04	1.85E-04	-8.8	±15
1,1-Dichloroethane	ELCD	4.63	413	489696	1.69E-04	1.96E-04	-14.0	±15	469528	1.76E-04	1.96E-04	-10.3	±15
cis-1,2-Dichloroethene	ELCD	5.29	502	514215	1.95E-04	2.02E-04	-3.1	±15	547483	1.83E-04	2.02E-04	-9.0	±15
Chloroform	ELCD	5.69	495	610441	1.62E-04	1.64E-04	-1.0	±15	624786	1.58E-04	1.64E-04	-3.3	±15
1,1,1-Trichloroethane	ELCD	5.86	491	605621	1.62E-04	1.59E-04	2.1	±15	638295	1.54E-04	1.59E-04	-3.1	±15
Carbon Tetrachloride	ELCD	6.06	492	721475	1.36E-04	1.31E-04	4.1	±15	756268	1.30E-04	1.31E-04	-0.7	±15
1,2-Dichloroethane	ELCD	6.39	489	549216	1.78E-04	1.81E-04	-1.4	±15	582851	1.68E-04	1.81E-04	-7.1	±15
Trichloroethene	ELCD	7.25	493	599171	1.65E-04	1.65E-04	-0.1	±15	618809	1.59E-04	1.65E-04	-3.3	±15
1,1,2-Trichloroethane	ELCD	10.12	491	531326	1.85E-04	1.86E-04	-0.6	±15	555362	1.77E-04	1.86E-04	-4.9	±15
Tetrachloroethene	ELCD	10.28	519	683686	1.52E-04	1.46E-04	4.3	±15	744355	1.39E-04	1.46E-04	-4.2	±15
1,1,1,2-Tetrachloroethane	ELCD	12.24	499	633629	1.58E-04	1.55E-04	1.5	±15	669240	1.49E-04	1.55E-04	-3.9	±15
1,1,2,2-Tetrachloroethane	ELCD	14.98	494	684006	1.44E-04	1.61E-04	-10.1	±15	760318	1.30E-04	1.61E-04	-19.1	±15
1,1-Dichloroethene	PID	3.29	509	124730	8.16E-04	7.44E-04	9.7	±15	126121	8.07E-04	7.44E-04	8.5	±15
Benzene	PID	6.28	505	318362	3.17E-04	3.10E-04	2.5	±15	314183	3.21E-04	3.10E-04	3.8	±15
Toluene	PID	9.26	494	273714	3.61E-04	3.34E-04	8.0	±15	273696	3.61E-04	3.34E-04	8.0	±15
Ethyl Benzene	PID	12.26	494	238345	4.15E-04	3.79E-04	9.4	±15	243042	4.07E-04	3.79E-04	7.3	±15
m/p-Xylene	PID	12.53	995	606255	3.28E-04	2.95E-04	11.2	±15	618497	3.22E-04	2.95E-04	9.0	±15
o-Xylene	PID	13.38	496	232083	4.27E-04	3.81E-04	12.2	±15	238398	4.16E-04	3.81E-04	9.2	±15
1,1,2-Trichlorotrifluoroethane	FID	4.15	484	17706	5.47E-03	5.07E-03	7.8	±25	17683	5.47E-03	5.07E-03	7.9	±25

**Table IIIB. LCS Check Results**

Lab ID: Phase 17 GC-II

**INTERPHASE**

ENVIRONMENTAL, INC.

Date Calibrated: March 01, 2001

Calibration Standard: CAL9906

LCS Standard: CAL9905

Date Standard Prepared: September 28, 1999

Analyst: Daniel Alvarez

Date LCS Checked:

4-Mar-01

5-Mar-01

Time LCS Checked:

17:21

19:30

Amount of LCS Injected (mL):

0.2

0.2

<i>Compound Name</i>	<i>Detector</i>	<i>RT (min)</i>	<i>Stnd Conc. (ug/L)</i>	<i>Area</i>	<i>RF</i>	<i>Cal. Avr. RF</i>	<i>% Dev.</i>	<i>Acpt. Rng.</i>	<i>Area</i>	<i>RF</i>	<i>Cal. Avr. RF</i>	<i>% Dev.</i>	<i>Acpt. Rng.</i>
Dichlorodifluoromethane	ELCD	1.46	489	307748	3.18E-04	3.42E-04	-7.0	±25	326521	3.00E-04	3.42E-04	-12.3	±25
Vinyl Chloride	ELCD	1.87	491	407103	2.41E-04	2.61E-04	-7.5	±25	432791	2.27E-04	2.61E-04	-13.0	±25
Chloroethane	ELCD	2.43	507	331270	3.06E-04	3.39E-04	-9.6	±25	318744	3.18E-04	3.39E-04	-6.0	±25
Trichlorodifluoromethane	ELCD	2.75	537	630744	1.70E-04	1.65E-04	3.0	±25	655247	1.64E-04	1.65E-04	-0.9	±25
Dichloromethane	ELCD	3.89	497	563404	1.76E-04	1.86E-04	-5.3	±15	573187	1.73E-04	1.86E-04	-6.9	±15
trans-1,2-Dichloroethene	ELCD	4.18	496	569594	1.74E-04	1.85E-04	-6.1	±15	592137	1.68E-04	1.85E-04	-9.6	±15
1,1-Dichloroethane	ELCD	4.63	413	460413	1.79E-04	1.96E-04	-8.5	±15	482016	1.71E-04	1.96E-04	-12.6	±15
cis-1,2-Dichloroethene	ELCD	5.29	502	517709	1.94E-04	2.02E-04	-3.8	±15	532164	1.89E-04	2.02E-04	-6.4	±15
Chloroform	ELCD	5.69	495	603630	1.64E-04	1.64E-04	0.1	±15	632479	1.57E-04	1.64E-04	-4.5	±15
1,1,1-Trichloroethane	ELCD	5.86	491	621902	1.58E-04	1.59E-04	-0.5	±15	642967	1.53E-04	1.59E-04	-3.8	±15
Carbon Tetrachloride	ELCD	6.06	492	723255	1.36E-04	1.31E-04	3.9	±15	751207	1.31E-04	1.31E-04	0.0	±15
1,2-Dichloroethane	ELCD	6.39	489	574302	1.70E-04	1.81E-04	-5.7	±15	578826	1.69E-04	1.81E-04	-6.5	±15
Trichloroethene	ELCD	7.25	493	601920	1.64E-04	1.65E-04	-0.6	±15	615685	1.60E-04	1.65E-04	-2.8	±15
1,1,2-Trichloroethane	ELCD	10.12	491	545173	1.80E-04	1.86E-04	-3.2	±15	557989	1.76E-04	1.86E-04	-5.4	±15
Tetrachloroethene	ELCD	10.28	519	705044	1.47E-04	1.46E-04	1.2	±15	727405	1.43E-04	1.46E-04	-2.0	±15
1,1,1,2-Tetrachloroethane	ELCD	12.24	499	652006	1.53E-04	1.55E-04	-1.4	±15	670902	1.49E-04	1.55E-04	-4.1	±15
1,1,2,2-Tetrachloroethane	ELCD	14.98	494	746986	1.32E-04	1.61E-04	-17.7	±15	720406	1.37E-04	1.61E-04	-14.6	±15
1,1-Dichloroethene	PID	3.29	509	124123	8.20E-04	7.44E-04	10.2	±15	122462	8.31E-04	7.44E-04	11.7	±15
Benzene	PID	6.28	505	308803	3.27E-04	3.10E-04	5.7	±15	306839	3.29E-04	3.10E-04	6.3	±15
Toluene	PID	9.26	494	265731	3.72E-04	3.34E-04	11.2	±15	262200	3.77E-04	3.34E-04	12.7	±15
Ethyl Benzene	PID	12.26	494	237079	4.17E-04	3.79E-04	10.0	±15	231423	4.27E-04	3.79E-04	12.7	±15
m/p-Xylene	PID	12.53	995	602786	3.30E-04	2.95E-04	11.9	±15	587891	3.38E-04	2.95E-04	14.7	±15
o-Xylene	PID	13.38	496	232975	4.26E-04	3.81E-04	11.8	±15	238494	4.16E-04	3.81E-04	9.2	±15
1,1,2-Trichlorotrifluoroethane	FID	4.15	484	17715	5.46E-03	5.07E-03	7.7	±25	17591	5.50E-03	5.07E-03	8.5	±25

**Table IVA. Daily Calibration Check Results**

Lab ID: Phase 17 GC-I



**INTERPHASE**  
ENVIRONMENTAL, INC.

Date Calibrated: January 17, 2001

Analyst: Daniel Alvarez

Standard: CAL9904

Date Standard Prepared: August 25, 1999

Date Calibration Checked:

3-Mar-01

4-Mar-01

6:48

8:11

0.2

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Time Calibration Checked:

Volume of Stndard Injected (mL):

0.2

Compound Name	Detector	RT (min)	Stnd Conc. ( $\mu\text{g/L}$ )	Cald. RF	Area	RF	% Dev.	Acpt. Rng.	Area	RF	% Dev.	Acpt. Rng.
Dichlorodifluoromethane	ELCD	1.83	350	4.12E-04	161270	4.34E-04	5.5	$\pm 25$	121479	5.76E-04	40.0	$\pm 25$
Vinyl Chloride	ELCD	2.33	348	2.95E-04	258050	2.70E-04	-8.7	$\pm 25$	217310	3.20E-04	8.5	$\pm 25$
Chloroethane	ELCD	3.00	359	5.24E-04	157184	4.57E-04	-12.8	$\pm 25$	139817	5.14E-04	-2.0	$\pm 25$
Trichlorofluoromethane	ELCD	3.38	357	2.08E-04	371086	1.92E-04	-7.3	$\pm 25$	325189	2.20E-04	5.8	$\pm 25$
Dichloromethane	ELCD	4.62	351	2.83E-04	268723	2.61E-04	-7.6	$\pm 15$	237703	2.95E-04	4.4	$\pm 15$
trans-1,2-Dichloroethene	ELCD	4.97	359	2.66E-04	304445	2.36E-04	-11.4	$\pm 15$	279429	2.57E-04	-3.5	$\pm 15$
1,1-Dichloroethane	ELCD	5.48	327	2.60E-04	274604	2.38E-04	-8.4	$\pm 15$	258408	2.53E-04	-2.6	$\pm 15$
cis-1,2-Dichloroethene	ELCD	6.23	352	2.77E-04	289097	2.44E-04	-12.1	$\pm 15$	258562	2.72E-04	-1.7	$\pm 15$
Chloroform	ELCD	6.66	350	2.08E-04	374169	1.87E-04	-10.2	$\pm 15$	344239	2.03E-04	-2.4	$\pm 15$
1,1,1-Trichloroethane	ELCD	6.90	353	2.09E-04	368890	1.91E-04	-8.6	$\pm 15$	337941	2.09E-04	-0.2	$\pm 15$
Carbon Tetrachloride	ELCD	7.15	348	1.81E-04	425375	1.64E-04	-9.8	$\pm 15$	396743	1.75E-04	-3.3	$\pm 15$
1,2-Dichloroethane	ELCD	7.44	350	3.10E-04	255163	2.74E-04	-11.5	$\pm 15$	233189	3.00E-04	-3.2	$\pm 15$
Trichloroethene	ELCD	8.43	345	2.25E-04	322131	2.14E-04	-4.8	$\pm 15$	304114	2.27E-04	0.9	$\pm 15$
1,1,2-Trichloroethane	ELCD	11.40	350	2.37E-04	305939	2.29E-04	-3.3	$\pm 15$	307728	2.27E-04	-3.9	$\pm 15$
Tetrachloroethene	ELCD	11.69	348	2.19E-04	320628	2.17E-04	-0.7	$\pm 15$	308002	2.26E-04	3.3	$\pm 15$
1,1,1,2-Tetrachloroethane	ELCD	13.65	351	2.07E-04	344011	2.04E-04	-1.3	$\pm 15$	335638	2.09E-04	1.2	$\pm 15$
1,1,2,2-Tetrachloroethane	ELCD	15.87	354	2.33E-04	324533	2.18E-04	-6.2	$\pm 15$	324661	2.18E-04	-6.2	$\pm 15$
1,1-Dichloroethene	PID	3.99	350	5.90E-04	126868	5.52E-04	-6.4	$\pm 15$	131069	5.34E-04	-9.4	$\pm 15$
Benzene	PID	7.39	359	2.44E-04	320385	2.24E-04	-8.2	$\pm 15$	328787	2.18E-04	-10.6	$\pm 15$
Toluene	PID	10.59	349	2.83E-04	281772	2.48E-04	-12.4	$\pm 15$	284853	2.45E-04	-13.3	$\pm 15$
Ethyl Benzene	PID	13.70	350	3.28E-04	249270	2.81E-04	-14.3	$\pm 15$	246667	2.84E-04	-13.4	$\pm 15$
m/p-Xylene	PID	13.98	693	2.63E-04	609367	2.27E-04	-13.6	$\pm 15$	600232	2.31E-04	-12.3	$\pm 15$
o-Xylene	PID	14.76	345	3.30E-04	243741	2.83E-04	-14.2	$\pm 15$	239738	2.88E-04	-12.8	$\pm 15$
1,1,2-Trichlorotrifluoroethane	FID	3.98	350	3.24E-03	21938	3.19E-03	-1.4	$\pm 25$	22389	3.13E-03	-3.4	$\pm 25$

**Table IVA. Daily Calibration Check Results**

Lab ID: Phase 17 GC-I



**INTERPHASE**  
ENVIRONMENTAL, INC.

Date Calibrated: January 17, 2001

Analyst: Daniel Alvarez

Standard: CAL9904

Date Standard Prepared: August 25, 1999

Date Calibration Checked:

5-Mar-01

Time Calibration Checked:

7:22

Volume of Stndard Injected (mL):

0.2

<i>Compound Name</i>	<i>Detector</i>	<i>RT (min)</i>	<i>Stnd Conc.</i> ( <i>ug/L</i> )	<i>Cald. RF</i>	<i>Area</i>	<i>RF</i>	<i>% Dev.</i>	<i>Acpt. Rng.</i>
Dichlorodifluoromethane	ELCD	1.83	350	4.12E-04	116224	6.02E-04	46.4	±25
Vinyl Chloride	ELCD	2.33	348	2.95E-04	213709	3.26E-04	10.3	±25
Chloroethane	ELCD	3.00	359	5.24E-04	139491	5.15E-04	-1.7	±25
Trichlorofluoromethane	ELCD	3.38	357	2.08E-04	328377	2.17E-04	4.7	±25
Dichloromethane	ELCD	4.62	351	2.83E-04	233701	3.00E-04	6.2	±15
trans-1,2-Dichloroethene	ELCD	4.97	359	2.66E-04	271784	2.64E-04	-0.8	±15
1,1-Dichloroethane	ELCD	5.48	327	2.60E-04	251640	2.60E-04	0.0	±15
cis-1,2-Dichloroethene	ELCD	6.23	352	2.77E-04	252476	2.79E-04	0.6	±15
Chloroform	ELCD	6.66	350	2.08E-04	339176	2.06E-04	-1.0	±15
1,1,1-Trichloroethane	ELCD	6.90	353	2.09E-04	332252	2.12E-04	1.5	±15
Carbon Tetrachloride	ELCD	7.15	348	1.81E-04	386816	1.80E-04	-0.8	±15
1,2-Dichloroethane	ELCD	7.44	350	3.10E-04	215726	3.24E-04	4.7	±15
Trichloroethene	ELCD	8.43	345	2.25E-04	267007	2.58E-04	14.9	±15
1,1,2-Trichloroethane	ELCD	11.40	350	2.37E-04	281503	2.49E-04	5.0	±15
Tetrachloroethene	ELCD	11.69	348	2.19E-04	288793	2.41E-04	10.2	±15
1,1,1,2-Tetrachloroethane	ELCD	13.65	351	2.07E-04	315432	2.23E-04	7.7	±15
1,1,2,2-Tetrachloroethane	ELCD	15.87	354	2.33E-04	293331	2.41E-04	3.8	±15
1,1-Dichloroethene	PID	3.99	350	5.90E-04	129202	5.42E-04	-8.1	±15
Benzene	PID	7.39	359	2.44E-04	322262	2.23E-04	-8.8	±15
Toluene	PID	10.59	349	2.83E-04	280020	2.49E-04	-11.8	±15
Ethyl Benzene	PID	13.70	350	3.28E-04	241934	2.89E-04	-11.7	±15
m/p-Xylene	PID	13.98	693	2.63E-04	589163	2.35E-04	-10.6	±15
o-Xylene	PID	14.76	345	3.30E-04	233512	2.95E-04	-10.5	±15
1,1,2-Trichlorotrifluoroethane	FID	3.98	350	3.24E-03	21803	3.21E-03	-0.8	±25

**Table IVB. Daily Calibration Check Results**

Lab ID: Phase 17 GC-II



**INTERPHASE**  
ENVIRONMENTAL, INC.

Date Calibrated: March 01, 2001

Analyst: Daniel Alvarez

Standard: CAL9906

Date Standard Prepared: Sept. 28, 1999

Date Calibration Checked:

3-Mar-01

4-Mar-01

Time Calibration Checked:

10:10

7:16

Amount of Standard Injected (mL)

0.2

0.2

Compound Name	Detector	RT (min)	Stnd Conc. ( $\mu$ g/L)	Cald. RF	Area	RF	% Dev.	Acpt. Rng.	Area	RF	% Dev.	Acpt. Rng.
Dichlorodifluoromethane	ELCD	1.42	490	3.42E-04	308925	3.17E-04	-7.1	$\pm 25$	321823	3.05E-04	-10.9	$\pm 25$
Vinyl Chloride	ELCD	1.83	492	2.61E-04	411635	2.39E-04	-8.3	$\pm 25$	428332	2.30E-04	-11.9	$\pm 25$
Chloroethane	ELCD	2.40	508	3.39E-04	320014	3.17E-04	-6.2	$\pm 25$	337719	3.01E-04	-11.1	$\pm 25$
Trichlorofluoromethane	ELCD	2.72	505	1.65E-04	643694	1.57E-04	-5.1	$\pm 25$	638945	1.58E-04	-4.4	$\pm 25$
Dichloromethane	ELCD	3.85	497	1.86E-04	572918	1.73E-04	-6.9	$\pm 15$	577019	1.72E-04	-7.6	$\pm 15$
trans-1,2-Dichloroethene	ELCD	4.13	508	1.85E-04	578550	1.76E-04	-5.3	$\pm 15$	570419	1.78E-04	-3.9	$\pm 15$
1,1-Dichloroethane	ELCD	4.57	463	1.96E-04	511680	1.81E-04	-7.7	$\pm 15$	516355	1.79E-04	-8.5	$\pm 15$
cis-1,2-Dichloroethene	ELCD	5.23	498	2.02E-04	535828	1.86E-04	-7.8	$\pm 15$	532839	1.87E-04	-7.2	$\pm 15$
Chloroform	ELCD	5.62	495	1.64E-04	649646	1.52E-04	-7.0	$\pm 15$	615792	1.61E-04	-1.9	$\pm 15$
1,1,1-Trichloroethane	ELCD	5.78	500	1.59E-04	642923	1.56E-04	-2.0	$\pm 15$	602924	1.66E-04	4.5	$\pm 15$
Carbon Tetrachloride	ELCD	5.98	493	1.31E-04	763724	1.29E-04	-1.4	$\pm 15$	710025	1.39E-04	6.0	$\pm 15$
1,2-Dichloroethane	ELCD	6.32	496	1.81E-04	573500	1.73E-04	-4.2	$\pm 15$	546040	1.82E-04	0.6	$\pm 15$
Trichloroethene	ELCD	7.15	489	1.65E-04	640181	1.53E-04	-7.3	$\pm 15$	557645	1.75E-04	6.4	$\pm 15$
1,1,2-Trichloroethane	ELCD	9.98	495	1.86E-04	603129	1.64E-04	-11.7	$\pm 15$	504814	1.96E-04	5.4	$\pm 15$
Tetrachloroethene	ELCD	10.15	493	1.46E-04	763876	1.29E-04	-11.3	$\pm 15$	683133	1.44E-04	-0.8	$\pm 15$
1,1,1,2-Tetrachloroethane	ELCD	12.07	497	1.55E-04	717065	1.39E-04	-10.7	$\pm 15$	633081	1.57E-04	1.2	$\pm 15$
1,1,2,2-Tetrachloroethane	ELCD	14.82	501	1.61E-04	820662	1.22E-04	-24.0	$\pm 15$	721740	1.39E-04	-13.6	$\pm 15$
1,1-Dichloroethene	PID	3.28	495	7.44E-04	129644	7.64E-04	2.6	$\pm 15$	124994	7.92E-04	6.4	$\pm 15$
Benzene	PID	6.24	508	3.10E-04	320202	3.17E-04	2.5	$\pm 15$	315653	3.22E-04	4.0	$\pm 15$
Toluene	PID	9.17	494	3.34E-04	277773	3.56E-04	6.4	$\pm 15$	274942	3.59E-04	7.5	$\pm 15$
Ethyl Benzene	PID	12.13	495	3.79E-04	248272	3.99E-04	5.3	$\pm 15$	247011	4.01E-04	5.8	$\pm 15$
m/p-Xylene	PID	12.39	981	2.95E-04	630568	3.11E-04	5.4	$\pm 15$	628450	3.12E-04	5.8	$\pm 15$
o-Xylene	PID	13.23	489	3.81E-04	245257	3.99E-04	4.7	$\pm 15$	243082	4.02E-04	5.6	$\pm 15$
1,1,2-Trichlorotrifluoroethane	FID	4.10	495	5.07E-03	17627	5.62E-03	10.7	$\pm 25$	17607	5.62E-03	10.8	$\pm 25$



**INTERPHASE**  
ENVIRONMENTAL, INC.

### Table IVB. Daily Calibration Check Results

Lab ID: Phase 17 GC-II

Date Calibrated: March 01, 2001

Analyst: Daniel Alvarez

Standard: CAL9906

Date Standard Prepared: Sept. 28, 1999

Date Calibration Checked:

5-Mar-01

Time Calibration Checked:

7:30

Amount of Standard Injected (mL)

0.2

Compound Name	Detector	RT (min)	Stnd Conc. (ug/L)	Cald. RF	Area	RF	% Dev.	Acpt. Rng.
Dichlorodifluoromethane	ELCD	1.42	490	3.42E-04	354339	2.77E-04	-19.0	±25
Vinyl Chloride	ELCD	1.83	492	2.61E-04	478603	2.06E-04	-21.2	±25
Chloroethane	ELCD	2.40	508	3.39E-04	366174	2.77E-04	-18.0	±25
Trichlorodifluoromethane	ELCD	2.72	505	1.65E-04	711446	1.42E-04	-14.2	±25
Dichloromethane	ELCD	3.85	497	1.86E-04	618475	1.61E-04	-13.8	±15
trans-1,2-Dichloroethene	ELCD	4.13	508	1.85E-04	627037	1.62E-04	-12.6	±15
1,1-Dichloroethane	ELCD	4.57	463	1.96E-04	541629	1.71E-04	-12.8	±15
cis-1,2-Dichloroethene	ELCD	5.23	498	2.02E-04	572141	1.74E-04	-13.6	±15
Chloroform	ELCD	5.62	495	1.64E-04	675459	1.47E-04	-10.6	±15
1,1,1-Trichloroethane	ELCD	5.78	500	1.59E-04	681624	1.47E-04	-7.6	±15
Carbon Tetrachloride	ELCD	5.98	493	1.31E-04	805485	1.22E-04	-6.6	±15
1,2-Dichloroethane	ELCD	6.32	496	1.81E-04	589229	1.68E-04	-6.8	±15
Trichloroethene	ELCD	7.15	489	1.65E-04	632322	1.55E-04	-6.1	±15
1,1,2-Trichloroethane	ELCD	9.98	495	1.86E-04	525701	1.88E-04	1.3	±15
Tetrachloroethene	ELCD	10.15	493	1.46E-04	686553	1.44E-04	-1.3	±15
1,1,1,2-Tetrachloroethane	ELCD	12.07	497	1.55E-04	633117	1.57E-04	1.2	±15
1,1,2,2-Tetrachloroethane	ELCD	14.82	501	1.61E-04	678342	1.48E-04	-8.1	±15
1,1-Dichloroethene	PID	3.28	495	7.44E-04	121029	8.18E-04	9.9	±15
Benzene	PID	6.24	508	3.10E-04	305565	3.32E-04	7.4	±15
Toluene	PID	9.17	494	3.34E-04	262818	3.76E-04	12.5	±15
Ethyl Benzene	PID	12.13	495	3.79E-04	231609	4.27E-04	12.9	±15
m/p-Xylene	PID	12.39	981	2.95E-04	589595	3.33E-04	12.8	±15
o-Xylene	PID	13.23	489	3.81E-04	225974	4.33E-04	13.6	±15
1,1,2-Trichlorotrifluoroethane	FID	4.10	495	5.07E-03	17855	5.54E-03	9.3	±25

## **Appendix B**

### **Offsite Lab Analysis of Summa Canister Sample**

**SEVERN  
TRENT  
SERVICES**

March 23, 2001

**STL LOT NUMBER: M1C090306**

**STL Los Angeles**  
1721 South Grand Avenue  
Santa Ana, CA 92705-4808

Tel: 714 258 8610  
Fax: 714 258 0921  
[www.stl-inc.com](http://www.stl-inc.com)

Sharon Wallin  
Camp Dresser McKee, Inc.  
18881 Von Karman Avenue  
Suite 650  
Irvine, CA 92612

Dear Ms. Wallin,

This report contains the analytical results for the sample received under chain of custody by STL Los Angeles on March 8, 2001. This sample is associated with your Phibro-Tech project.

Preliminary results were sent via facsimile on Thursday, March 22, 2001.

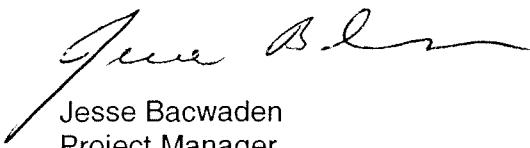
STL Los Angeles certifies that the test results provided in this report meet all the requirements of NELAC. Our certificate number is 01118CA. All applicable quality control procedures met method-specified acceptance criteria. Any matrix-related anomalies are indicated using footnotes within the report.

This report shall not be reproduced except in full, without the written approval of the laboratory.

This report contains 000018 pages.

If you have any questions, please feel free to call me at 714-258-8610.

Sincerely,



Jesse Bacwaden  
Project Manager

cc: Project File

**000001**

STL Los Angeles is a part of Severn Trent Laboratories, Inc.



## **ANALYTICAL REPORT**

PROJECT NO. 2279-11462-111

Phibro-Tech

Lot #: M1C090306

Sharon Wallin

Camp Dresser McKee, Inc.

SEVERN TRENT LABORATORIES, INC.

Jesse Bacwaden  
Project Manager

March 23, 2001

**000003**

# **EXECUTIVE SUMMARY - Detection Highlights**

**MIC090306**

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>ANALYTICAL METHOD</u>
<b>SV20-18' 03/04/01 09:20 001</b>				
Vinyl chloride	1700	320	ppb (v/v)	EPA-21 TO-14A
Chloroethane	15000	650	ppb (v/v)	EPA-21 TO-14A
1,1-Dichloroethene	94000	900	ppb (v/v)	EPA-21 TO-14A
trans-1,2-Dichloroethene	13000	320	ppb (v/v)	EPA-21 TO-14A
1,1-Dichloroethane	93000	900	ppb (v/v)	EPA-21 TO-14A
cis-1,2-Dichloroethene	14000	320	ppb (v/v)	EPA-21 TO-14A
Benzene	2700	320	ppb (v/v)	EPA-21 TO-14A
Trichloroethene	52000	320	ppb (v/v)	EPA-21 TO-14A
Tetrachloroethene	380	320	ppb (v/v)	EPA-21 TO-14A

**000004**

# **ANALYTICAL METHODS SUMMARY**

**MIC090306**

<u>PARAMETER</u>	<u>ANALYTICAL METHOD</u>
Volatile Organics by TO-14A	EPA-21 TO-14A

**References:**

EPA-21 "Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air", Second Edition, EPA/625/R-96/010b, January 1997

**000005**

# SAMPLE SUMMARY

M1C090306

<u>WO #</u>	<u>SAMPLE#</u>	<u>CLIENT</u>	<u>SAMPLE ID</u>	<u>SAMPLED DATE</u>	<u>SAMP TIME</u>
DW7RP	001	SV20-18'		03/04/01	09:20

**NOTE (S) :**

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

000006

## CAMP DRESSER McKEE, INC.

Client Sample ID: SV20-18'

## GC/MS Volatiles

Lot-Sample #....: M1C090306-001      Work Order #....: DW7RP1AC      Matrix.....: AIR  
 Date Sampled....: 03/04/01      Date Received...: 03/08/01  
 Prep Date.....: 03/19/01      Analysis Date...: 03/19/01  
 Prep Batch #....: 1079432  
 Dilution Factor: 161.4  
 Analyst ID.....: 117751

**Instrument ID...**: MSA  
**Method.....**: EPA-21 TO-14A

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>
Dichlorodifluoromethane	ND	320	ppb (v/v)
Chloromethane	ND	650	ppb (v/v)
1,2-Dichloro-	ND	320	ppb (v/v)
1,1,2,2-tetrafluoroethane			
Vinyl chloride	1700	320	ppb (v/v)
Bromomethane	ND	320	ppb (v/v)
Chloroethane	15000	650	ppb (v/v)
Trichlorofluoromethane	ND	320	ppb (v/v)
Carbon disulfide	ND	1600	ppb (v/v)
1,1,2-Trichloro-	ND	320	ppb (v/v)
1,2,2-trifluoroethane			
Acetone	ND	1600	ppb (v/v)
Methylene chloride	ND	320	ppb (v/v)
trans-1,2-Dichloroethene	13000	320	ppb (v/v)
Vinyl acetate	ND	1600	ppb (v/v)
cis-1,2-Dichloroethene	14000	320	ppb (v/v)
2-Butanone (MEK)	ND	1600	ppb (v/v)
Chloroform	ND	320	ppb (v/v)
1,1,1-Trichloroethane	ND	320	ppb (v/v)
Carbon tetrachloride	ND	320	ppb (v/v)
Benzene	2700	320	ppb (v/v)
1,2-Dichloroethane	ND	320	ppb (v/v)
Trichloroethene	52000	320	ppb (v/v)
1,2-Dichloropropane	ND	320	ppb (v/v)
Bromodichloromethane	ND	320	ppb (v/v)
cis-1,3-Dichloropropene	ND	320	ppb (v/v)
4-Methyl-2-pentanone (MIBK)	ND	1600	ppb (v/v)
Toluene	ND	320	ppb (v/v)
trans-1,3-Dichloropropene	ND	320	ppb (v/v)
1,1,2-Trichloroethane	ND	320	ppb (v/v)
Tetrachloroethene	380	320	ppb (v/v)
2-Hexanone	ND	4800	ppb (v/v)
Dibromochloromethane	ND	320	ppb (v/v)
1,2-Dibromoethane (EDB)	ND	320	ppb (v/v)
Chlorobenzene	ND	320	ppb (v/v)
Ethylbenzene	ND	320	ppb (v/v)

(Continued on next page)

000007

## CAMP DRESSER MCKEE, INC.

Client Sample ID: SV20-18'

## GC/MS Volatiles

Lot-Sample #....: M1C090306-001 Work Order #....: DW7RP1AC Matrix.....: AIR

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Xylenes (total)	ND	320	ppb (v/v)
Styrene	ND	320	ppb (v/v)
Bromoform	ND	320	ppb (v/v)
1,1,2,2-Tetrachloroethane	ND	320	ppb (v/v)
Benzyl chloride	ND	1600	ppb (v/v)
4-Ethyltoluene	ND	320	ppb (v/v)
1,3,5-Trimethylbenzene	ND	320	ppb (v/v)
1,2,4-Trimethylbenzene	ND	320	ppb (v/v)
1,3-Dichlorobenzene	ND	320	ppb (v/v)
1,4-Dichlorobenzene	ND	320	ppb (v/v)
1,2-Dichlorobenzene	ND	320	ppb (v/v)
1,2,4-Trichloro- benzene	ND	3200	ppb (v/v)
Hexachlorobutadiene	ND	650	ppb (v/v)

000008

**CAMP DRESSER MCKEE, INC.**

Client Sample ID: SV20-18'

GC/MS Volatiles

**Lot-Sample #....:** M1C090306-001    **Work Order #....:** DW7RP2AC    **Matrix.....:** AIR  
**Date Sampled...:** 03/04/01    **Date Received...:** 03/08/01  
**Prep Date.....:** 03/20/01    **Analysis Date...:** 03/20/01  
**Prep Batch #....:** 1080413  
**Dilution Factor:** 451.8  
**Analyst ID.....:** 117751    **Instrument ID...:** MSA

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>
1,1-Dichloroethene	94000	900	ppb(v/v)
1,1-Dichloroethane	93000	900	ppb(v/v)

000009

# QC DATA ASSOCIATION SUMMARY

MIC090306

## Sample Preparation and Analysis Control Numbers

<u>SAMPLE#</u>	<u>MATRIX</u>	<u>ANALYTICAL METHOD</u>	<u>LEACH BATCH #</u>	<u>PREP BATCH #</u>	<u>MS RUN#</u>
001	AIR	EPA-21 TO-14A		1079432	
	AIR	EPA-21 TO-14A		1080413	

000010

## METHOD BLANK REPORT

## GC/MS Volatiles

Client Lot #....: M1C090306  
 MB Lot-Sample #: M1C200000-432  
 Analysis Date...: 03/19/01  
 Dilution Factor: 1

Work Order #....: DXM7A1AA

Matrix.....: AIR

Prep Date.....: 03/19/01

Instrument ID...: MSA

Prep Batch #....: 1079432

Analyst ID.....: 117751

PARAMETER	RESULT	REPORTING		
		LIMIT	UNITS	METHOD
Dichlorodifluoromethane	ND	2.0	ppb(v/v)	EPA-21 TO-14A
Chloromethane	ND	4.0	ppb(v/v)	EPA-21 TO-14A
1,2-Dichloro-	ND	2.0	ppb(v/v)	EPA-21 TO-14A
1,1,2,2-tetrafluoroethane				
Vinyl chloride	ND	2.0	ppb(v/v)	EPA-21 TO-14A
Bromomethane	ND	2.0	ppb(v/v)	EPA-21 TO-14A
Chloroethane	ND	4.0	ppb(v/v)	EPA-21 TO-14A
Trichlorofluoromethane	ND	2.0	ppb(v/v)	EPA-21 TO-14A
Carbon disulfide	ND	10	ppb(v/v)	EPA-21 TO-14A
1,1,2-Trichloro-	ND	2.0	ppb(v/v)	EPA-21 TO-14A
1,2,2-trifluoroethane				
Acetone	ND	10	ppb(v/v)	EPA-21 TO-14A
Methylene chloride	ND	2.0	ppb(v/v)	EPA-21 TO-14A
trans-1,2-Dichloroethene	ND	2.0	ppb(v/v)	EPA-21 TO-14A
Vinyl acetate	ND	10	ppb(v/v)	EPA-21 TO-14A
cis-1,2-Dichloroethene	ND	2.0	ppb(v/v)	EPA-21 TO-14A
2-Butanone (MEK)	ND	10	ppb(v/v)	EPA-21 TO-14A
Chloroform	ND	2.0	ppb(v/v)	EPA-21 TO-14A
1,1,1-Trichloroethane	ND	2.0	ppb(v/v)	EPA-21 TO-14A
Carbon tetrachloride	ND	2.0	ppb(v/v)	EPA-21 TO-14A
Benzene	ND	2.0	ppb(v/v)	EPA-21 TO-14A
1,2-Dichloroethane	ND	2.0	ppb(v/v)	EPA-21 TO-14A
Trichloroethene	ND	2.0	ppb(v/v)	EPA-21 TO-14A
1,2-Dichloropropane	ND	2.0	ppb(v/v)	EPA-21 TO-14A
Bromodichloromethane	ND	2.0	ppb(v/v)	EPA-21 TO-14A
cis-1,3-Dichloropropene	ND	2.0	ppb(v/v)	EPA-21 TO-14A
4-Methyl-2-pentanone (MIBK)	ND	10	ppb(v/v)	EPA-21 TO-14A
Toluene	ND	2.0	ppb(v/v)	EPA-21 TO-14A
trans-1,3-Dichloropropene	ND	2.0	ppb(v/v)	EPA-21 TO-14A
1,1,2-Trichloroethane	ND	2.0	ppb(v/v)	EPA-21 TO-14A
Tetrachloroethene	ND	2.0	ppb(v/v)	EPA-21 TO-14A
2-Hexanone	ND	30	ppb(v/v)	EPA-21 TO-14A
Dibromochloromethane	ND	2.0	ppb(v/v)	EPA-21 TO-14A
1,2-Dibromoethane (EDB)	ND	2.0	ppb(v/v)	EPA-21 TO-14A
Chlorobenzene	ND	2.0	ppb(v/v)	EPA-21 TO-14A
Ethylbenzene	ND	2.0	ppb(v/v)	EPA-21 TO-14A
Xylenes (total)	ND	2.0	ppb(v/v)	EPA-21 TO-14A
Styrene	ND	2.0	ppb(v/v)	EPA-21 TO-14A
Bromoform	ND	2.0	ppb(v/v)	EPA-21 TO-14A

(Continued on next page)

000011

**METHOD BLANK REPORT**

**GC/MS Volatiles**

**Client Lot #....: M1C090306**

**Work Order #....: DXM7A1AA**

**Matrix.....: AIR**

<b>PARAMETER</b>	<b>REPORTING</b>		
	<b>RESULT</b>	<b>LIMIT</b>	<b>UNITS</b>
1,1,2,2-Tetrachloroethane	ND	2.0	ppb (v/v)
Benzyl chloride	ND	10	ppb (v/v)
4-Ethyltoluene	ND	2.0	ppb (v/v)
1,3,5-Trimethylbenzene	ND	2.0	ppb (v/v)
1,2,4-Trimethylbenzene	ND	2.0	ppb (v/v)
1,3-Dichlorobenzene	ND	2.0	ppb (v/v)
1,4-Dichlorobenzene	ND	2.0	ppb (v/v)
1,2-Dichlorobenzene	ND	2.0	ppb (v/v)
1,2,4-Trichloro- benzene	ND	20	ppb (v/v)
Hexachlorobutadiene	ND	4.0	ppb (v/v)

**NOTE(S) :**

Calculations are performed before rounding to avoid round-off errors in calculated results.

**000012**

**METHOD BLANK REPORT**

**GC/MS Volatiles**

**Client Lot #....:** M1C090306  
**MB Lot-Sample #:** M1C210000-413  
**Analysis Date...:** 03/20/01  
**Dilution Factor:** 1

**Work Order #....:** DXQDK1AA  
**Prep Date.....:** 03/20/01  
**Prep Batch #....:** 1080413  
**Analyst ID.....:** 117751

**Matrix.....:** AIR

**Instrument ID...:** MSA

<b>PARAMETER</b>	<b>RESULT</b>	<b>REPORTING LIMIT</b>	<b>UNITS</b>	<b>METHOD</b>
1,1-Dichloroethene	ND	2.0	ppb (v/v)	EPA-21 TO-14A
1,1-Dichloroethane	ND	2.0	ppb (v/v)	EPA-21 TO-14A

**NOTE (S) :**

Calculations are performed before rounding to avoid round-off errors in calculated results.

**000013**

**LABORATORY CONTROL SAMPLE DATA REPORT**

## GC/MS Volatiles

**Client Lot #....:** M1C090306      **Work Order #....:** DXM7A1AC-LCS      **Matrix.....:** AIR  
**LCS Lot-Sample#:** M1C200000-432       DXM7A1AD-LCSD  
**Prep Date.....:** 03/19/01      **Analysis Date...:** 03/19/01  
**Prep Batch #....:** 1079432  
**Dilution Factor:** 1      **Instrument ID...:** MSA  
**Analyst ID.....:** 117751

PARAMETER	SPIKE	MEASURED		PERCENT		METHOD
	AMOUNT	AMOUNT	UNITS	RECOVERY	RPD	
1,1-Dichloroethene	48.0	52.7	ppb(v/v)	110		EPA-21 TO-14A
	48.0	55.0	ppb(v/v)	115	4.2	EPA-21 TO-14A
Methylene chloride	53.6	51.0	ppb(v/v)	95		EPA-21 TO-14A
	53.6	51.8	ppb(v/v)	97	1.7	EPA-21 TO-14A
Trichloroethene	47.2	55.6	ppb(v/v)	118		EPA-21 TO-14A
	47.2	55.0	ppb(v/v)	117	1.2	EPA-21 TO-14A
Toluene	51.3	53.4	ppb(v/v)	104		EPA-21 TO-14A
	51.3	54.1	ppb(v/v)	106	1.3	EPA-21 TO-14A
1,1,2,2-Tetrachloroethane	50.0	48.5	ppb(v/v)	97		EPA-21 TO-14A
	50.0	49.1	ppb(v/v)	98	1.3	EPA-21 TO-14A

**NOTE (S) :**

Calculations are performed before rounding to avoid round-off errors in calculated results.

**Bold print** denotes control parameters

000014

**LABORATORY CONTROL SAMPLE EVALUATION REPORT**

GC/MS Volatiles

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>RPD</u>	<u>RPD LIMITS</u>	<u>METHOD</u>
1,1-Dichloroethene	110	(70 - 120)			EPA-21 TO-14A
	115	(70 - 120)	4.2	(0-20)	EPA-21 TO-14A
Methylene chloride	95	(80 - 120)			EPA-21 TO-14A
	97	(80 - 120)	1.7	(0-20)	EPA-21 TO-14A
Trichloroethene	118	(80 - 120)			EPA-21 TO-14A
	117	(80 - 120)	1.2	(0-20)	EPA-21 TO-14A
Toluene	104	(70 - 120)			EPA-21 TO-14A
	106	(70 - 120)	1.3	(0-20)	EPA-21 TO-14A
1,1,2,2-Tetrachloroethane	97	(75 - 130)			EPA-21 TO-14A
	98	(75 - 130)	1.3	(0-20)	EPA-21 TO-14A

**NOTE (S) :**

Calculations are performed before rounding to avoid round-off errors in calculated results.

**Bold print** denotes control parameters

000015

## LABORATORY CONTROL SAMPLE DATA REPORT

## GC/MS Volatiles

Client Lot #....: M1C090306      Work Order #....: DXQDK1AC-LCS      Matrix.....: AIR  
 LCS Lot-Sample#: M1C210000-413         DXQDK1AD-LCSD  
 Prep Date.....: 03/20/01      Analysis Date...: 03/20/01  
 Prep Batch #....: 1080413  
 Dilution Factor: 1      Instrument ID...: MSA  
 Analyst ID.....: 117751

PARAMETER	SPIKE	MEASURED		PERCENT		METHOD
	AMOUNT	AMOUNT	UNITS	RECOVERY	RPD	
1,1-Dichloroethene	<b>48.0</b>	53.5	ppb(v/v)	112		EPA-21 TO-14A
	<b>48.0</b>	54.1	ppb(v/v)	113	1.2	EPA-21 TO-14A
Methylene chloride	<b>53.6</b>	52.5	ppb(v/v)	98		EPA-21 TO-14A
	<b>53.6</b>	52.5	ppb(v/v)	98	0.050	EPA-21 TO-14A
Trichloroethene	<b>47.2</b>	55.2	ppb(v/v)	117		EPA-21 TO-14A
	<b>47.2</b>	54.7	ppb(v/v)	116	1.0	EPA-21 TO-14A
Toluene	<b>51.3</b>	52.9	ppb(v/v)	103		EPA-21 TO-14A
	<b>51.3</b>	52.3	ppb(v/v)	102	1.2	EPA-21 TO-14A
1,1,2,2-Tetrachloroethane	<b>50.0</b>	47.6	ppb(v/v)	95		EPA-21 TO-14A
	<b>50.0</b>	47.4	ppb(v/v)	95	0.50	EPA-21 TO-14A

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

000016

**LABORATORY CONTROL SAMPLE EVALUATION REPORT**

GC/MS Volatiles

**Client Lot #....:** M1C090306      **Work Order #....:** DXQDK1AC-LCS      **Matrix.....:** AIR  
**LCS Lot-Sample#:** M1C210000-413            **DXQDK1AD-LCSD**  
**Prep Date.....:** 03/20/01      **Analysis Date...:** 03/20/01  
**Prep Batch #....:** 1080413  
**Dilution Factor:** 1      **Instrument ID..:** MSA  
**Analyst ID.....:** 117751

PARAMETER	PERCENT	RECOVERY	RPD		METHOD
	RECOVERY	LIMITS	RPD	LIMITS	
1,1-Dichloroethene	112	(70 - 120)			EPA-21 TO-14A
	113	(70 - 120)	1.2	(0-20)	EPA-21 TO-14A
Methylene chloride	98	(80 - 120)			EPA-21 TO-14A
	98	(80 - 120)	0.050	(0-20)	EPA-21 TO-14A
Trichloroethene	117	(80 - 120)			EPA-21 TO-14A
	116	(80 - 120)	1.0	(0-20)	EPA-21 TO-14A
Toluene	103	(70 - 120)			EPA-21 TO-14A
	102	(70 - 120)	1.2	(0-20)	EPA-21 TO-14A
1,1,2,2-Tetrachloroethane	95	(75 - 130)			EPA-21 TO-14A
	95	(75 - 130)	0.50	(0-20)	EPA-21 TO-14A

**NOTE (S) :**

Calculations are performed before rounding to avoid round-off errors in calculated results.

**Bold print** denotes control parameters

000017

SEVERN  
TRENT  
SERVICES

## CANISTER FIELD DATA RECORD

CLIENT: CDM  
 CANISTER SERIAL #: 8812 B  
 DATE CLEANED: 3-1-01 A  
 CLIENT SAMPLE #: \_\_\_\_\_  
 SITE LOCATION: \_\_\_\_\_

VFR ID: \_\_\_\_\_

Duration of comp.: \_\_\_\_\_ hrs. / mins.

Flow setting: \_\_\_\_\_ ml/min

Initials: \_\_\_\_\_

READING	TIME	Vac. (inches Hg) Or PRESS. (psig)	DATE	INITIALS
INITIAL VACUUM CHECK	[REDACTED]	30"	3/2/01	(A)
INITIAL FIELD VACUUM				
FINAL FIELD READING				
GAUGE READING UPON RECEIPT				

### LABORATORY CANISTER PRESSURIZATION

INITIAL VACUUM (inches Hg and PSIA)	10.84	3/2/01	AA
FINAL PRESSURE (PSIA)	24.36	3/2/01	AA

Pressurization Gas: N<sub>2</sub>

COMMENTS:

COMPOSITE TIME (HOURS)	FLOW RATE RANGE (ml/min)
0.5 Hours	158 - 166.7
1	79.2 - 83.3
2	39.6 - 41.7
4	19.8 - 20.8
6	13.2 - 13.9
8	9.9 - 10.4
10	7.92 - 8.3
12	6.6 - 6.9
24	3.5 - 4.0

## **Appendix C**

### **Calculation Backup for Soil Screening Levels**

**Phibro-Tech, Inc.**  
**Concentration of Soil Cleanup Screening Levels for 1,1,1-TCA<sup>1</sup>**

**Known Information**

Depth to groundwater = 53' below ground surface<sup>2</sup>

TGR<sup>2</sup> = 0

TSA<sup>2</sup> = 13

TSI<sup>2</sup> = 4

TCL<sup>2</sup> = 18

MCL(ug/L)<sup>3</sup> = 5

AF<sub>MAX</sub><sup>3</sup> = 166

**Calculations**

$$AF_D^4 = 14.65$$

$$AF_T^5 = 8.41$$

$$C^6 = 42.07$$

1. Concentration of Soil Cleanup Screening Levels calculated at a depth of 18' below ground surface
2. Based on borehole log data from CDM, 1991. Appendix A-E RCRA Facility Investigation Southern California Chemical Santa Fe Springs, CA
3. Based on table 2 from CRWQCB-LA May 1996 Guidebook, Appendix A
4. Based on equation 7 from CRWQCB-LA May 1996 Guidebook, Appendix A
5. Based on equation 12 from CRWQCB-LA May 1996 Guidebook, Appendix A
6. Based on equation 13 from CRWQCB-LA May 1996 Guidebook, Appendix A

TGR = Total thickness of gravel layer within depth to ground water (ft)

TSA = Total thickness of sand layer within depth to ground water (ft)

TSI = Total thickness of silt layer within depth to ground water (ft)

TCL = Total thickness of clay layer within depth to ground water (ft)

MCL(ug/L) = Maximum contaminant levels for drinking water (CRR Title 22)

AF<sub>MAX</sub> = Maximum attenuation factor

AF<sub>D</sub> = Modification factor due to distance above ground water

AF<sub>T</sub> = Attenuation factor with total modification for distance above ground water and lithology

C = Concentration of soil cleanup screening level (ppb)

**Phibro-Tech, Inc.**  
**Concentration of Soil Cleanup Screening Levels for 1,1-DCA<sup>1</sup>**

**Known Information**

Depth to groundwater = 53' below ground surface<sup>2</sup>

$$\text{TGR}^2 = 0$$

$$\text{TSA}^2 = 13$$

$$\text{TSI}^2 = 4$$

$$\text{TCL}^2 = 18$$

$$\text{MCL}(\mu\text{g/L})^3 = 5$$

$$\text{AF}_{\text{MAX}}^3 = 35$$

**Calculations**

$$\text{AF}_D^4 = 3.19$$

$$\text{AF}_T^5 = 1.83$$

$$\mathbf{C}^6 = 9.15$$

1. Concentration of Soil Cleanup Screening Levels calculated at a depth of 18' below ground surface
2. Based on borehole log data from CDM, 1991. Appendix A-E RCRA Facility Investigation Southern California Chemical Santa Fe Springs, CA
3. Based on table 2 from CRWQCB-LA May 1996 Guidebook, Appendix A
4. Based on equation 7 from CRWQCB-LA May 1996 Guidebook, Appendix A
5. Based on equation 12 from CRWQCB-LA May 1996 Guidebook, Appendix A
6. Based on equation 13 from CRWQCB-LA May 1996 Guidebook, Appendix A

**Phibro-Tech, Inc.**  
**Concentration of Soil Cleanup Screening Levels for TCE<sup>1</sup>**

**Known Information**

Depth to groundwater = 53' below ground surface<sup>2</sup>

$$\text{TGR}^2 = 0$$

$$\text{TSA}^2 = 13$$

$$\text{TSI}^2 = 4$$

$$\text{TCL}^2 = 18$$

$$\text{MCL}(\text{ug/L})^3 = 5$$

$$\text{AF}_{\text{MAX}}^3 = 145$$

**Calculations**

$$\text{AF}_D^4 = 12.81$$

$$\text{AF}_T^5 = 7.36$$

$$\mathbf{C^6 = 36.79}$$

1. Concentration of Soil Cleanup Screening Levels calculated at a depth of 18' below ground surface
2. Based on borehole log data from CDM, 1991. Appendix A-E RCRA Facility Investigation Southern California Chemical Santa Fe Springs, CA
3. Based on table 2 from CRWQCB-LA May 1996 Guidebook, Appendix A
4. Based on equation 7 from CRWQCB-LA May 1996 Guidebook, Appendix A
5. Based on equation 12 from CRWQCB-LA May 1996 Guidebook, Appendix A
6. Based on equation 13 from CRWQCB-LA May 1996 Guidebook, Appendix A

TGR = Total thickness of gravel layer within depth to ground water (ft)

TSA = Total thickness of sand layer within depth to ground water (ft)

TSI = Total thickness of silt layer within depth to ground water (ft)

TCL = Total thickness of clay layer within depth to ground water (ft)

MCL(ug/L) = Maximum contaminant levels for drinking water (CRR Title 22)

AF<sub>MAX</sub> = Maximum attenuation factor

AF<sub>D</sub> = Modification factor due to distance above ground water

AF<sub>T</sub> = Attenuation factor with total modification for distance above ground water and lithology

C = Concentration of soil cleanup screening level (ppb)